ALASKA LEGISLATURE COMMITTEE FILES 1985-1986 8072

3717 HSTA HB 647

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02-519 (REV 8/78)

HB

647

Katie Hurley, House of Representatives

Alaska State Legislature

Chair, House State Affairs Committee
Member, Health Education & Social Services Committee
Member, Alaska Legislative Council
Member, House Special Committee on Fisheries
Member, Finance Subcommittee on Corrections
Member, Joint Committee on Local Option Elections

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March 19, 1986
REMARKS ON HB 647

On this afternoon's calendar we have HB 647, the so called Community-Right-To-Know Bill. I appreciate the opportunity to bring this issue before you and feel it is an invaluable step toward protecting Alaskans from exposure to hazardous chemicals.

As you may or may not be aware, Community-Right-To-Know laws give firefighters, emergency responders, health professionals, elected officials and the public the right to know the existence, location and potential dangers of hazardous chemicals being used, stored or produced in their communities.

HB 647 provides communities across Alaska with guidance and structure in addressing the health and safety dangers posed by hazardous substances.

This legislation was introduced in response to recommendations made by municipal officials, the Alaska Medical Association, the Alaska Public Health Association, and the Alaska Health Project that a statewide framework be established under which municipalities could directly collect this critical information and develop procedures to effectively monitor the type, quantity and location of hazardous substances within their boundaries and service districts.

In summary, HB 647 basically accomplishes two things

Enables Alaskan municipalities to enact Community-Right-To-Know ordinances by setting out minimum reporting and posting requirements uniform across the state. As currently written, HB 647 no longer requires municipalities to enact programs but rather sets up uniform, standardized state guidelines should they chose to do so.

Provides for a statewide placarding system - It was felt by the CRA Committee that if the state was not going to require all municipalities to participate it was important to at least require those who handl' hazardous substances to post warning placards.

HB 647 DOES NOT include transportation - this issue is being addressed in HB 672 and 673. It also DOES NOT include the everyday person who has a few containers of gas and paint in the garage - the bill excludes quantities that do not pose significant public danger or threaten the safety of emergency responders.

I would like to point out that there is currently no comprehensive list or systemic method available for people in this state to identify the use or storage of toxic or hazardous chemicals. Research evidence implies that the true magnitude of hazardous substance problem in Alaska is quite serious. One just needs to consider the hydrochloric spill in the middle of Fairbanks, the chlorine episode in Kodiak over the weekend and of course the recent Moose Pass incident.

Unless the names and hazardous properties of chemicals in a community are not publicly available, government officials charged with protecting property and public health are left virtually blindfolded waiting for a crisis to occur.

The actual cost of this ignorance can actually be much higher than the price of implementing a local Community-Right-To-Know law.

Katie Hurley, House of Representatives

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COMMUNITY-RIGHT-TO-KNOW
FACT SHEET
HB 647

WHAT IS "COMMUNITY-RIGHT-TO-KNOW"?

Community-Right-To-Know laws give firefighters, emergency medical technicians, health professionals and community residents the right to know the existence, location and potential dangers of hazardous chemicals being used, stored or produced in their communities.

With basic information about hazardous chemicals in their communities, citizens and emergency response personnel are better able to take measures to protect themselves against dangers posed to health and safety.

ISN'T THIS INFORMATION ALREADY AVAILABLE?

No. According to the Alaska Department of Labor and the Alaska Department of Environmental Conservation, there is no comprehensive list or systemic method for identifying or locating the use or storage of toxic and hazardous substances in Alaskan municipalities.

IS THERE A NEED FOR THIS LEGISLATION?

There have been a number of hazardous materials incidents in Alaska impacting communities and the health and safety of emergency responders. The recent chlorine episode in Kodiak, the hydrochloric spill in Fairbanks and the Moose Pass situation underscore this fact.

Literally thousands of pounds of hazardous substances are shipped annually to Alaskan ports via air, rail, barge and road transportation. These ports include both urban and rural Alaska including Nome, Kotzebue, Dillingham, Whittier and others.

There is no unified system in existence which would enable residents to spot potential chemical hazards and, when necessary, prepare and advocate for their own safety.

Communities need the uniform guidance and structure provided for by the proposed legislation. HB 647 provides standardized protection through out Alaska and eases compliance for companies that might otherwise have to contend with varying reporting and posting requirements in different localities.

Unless the names and hazardous properties of chemicals being produced, used or stored in a community are publicly available, community residents, government officials and others charged with protecting property and public health are left virtually blindfolded waiting for a crisis to occur.

The price of this ignorance can be much higher than the cost of implementing a local Community-Right-To-Know Law.

WHAT ARE THE MAJOR PROVISIONS OF HB 647?

HB 647 was introduced in response to recommendations made by municipal officials that a statewide framework be established under which municipalities could directly collect information and develop procedures to address problems posed by the presence of hazardous chemicals in their communities. Specifically, HB 647:

o Enables Alaskan municipalities to enact Community-Right-To-Know ordinances by instituting minimum reporting and posting requirements for businesses or government agencies that handle hazardous chemicals. Municipalities then would be able to effectively monitor the type, quantity and location of hazardous substances within their boundaries and service districts.

o Requires the Department of Public Safety, Division of Fire Prevention, to develop and provide municipalities with inventory forms and information about the hazardous substances required to be reported.

o Calls for the Department of Public Safety, Division of Fire Prevention, to design warning placards and develop posting regulations to be used in throughout Alaska.

o Provides the potential for the future development of a statewide inventory and emergency resource network and coordination system.

WHY DESIGNATE THE DEPARTMENT OF PUBLIC SAFETY AS THE RESOURCE AGENCY?

Almost every incorporated community in Alaska has a fire hall or public safety officer. The Department of Public Safety has the greatest potential, in comparison to other state agencies, to provide the most effective outreach to municipalities throughout Alaska.

WILL IT BE HARDER FOR SMALL MUNICIPALITIES TO IMPLEMENT COMMUNITY-RIGHT-TO-KNOW PROGRAMS?

It may actually be easier for smaller municipalities to implement Community-Right-To-Know and Protection programs if for no other reason than the fact they have fewer chemicals in their communities.

For small municipalities who need assistance with the program there will be information available from the State Fire Marshals Office. Additionally, the Alaska Health Project is nearing the completion of a project for the Department of Health & Social Services that will assist communities in evaluating hazardous substance problems in their areas and provide suggestions in developing programs to address those problems.

Smaller municipalities are often not fully aware of the hazards of the chemicals they use. A Community-Right-To-Know program will serve to provide small communities with more information about potential chemical hazards.

HAVE OTHER STATES ENACTED COMMUNITY-RIGHT-TO-KNOW LAWS?

Twelve states from New Jersey to Oregon have passed Community-Right-To-Know laws in the past few years. Many cities have also enacted such laws.

RESPONSIBILITIES OF PARTICIPATING MUNICIPALITIES AND THE STATE FIRE MARSHAL'S OFFICE

HB 647

In order to provide standardized protection throughout the state and ease compliance for companies that might otherwise have to contend with varying reporting requirements in different localities, HB 647 calls for participating municipalities and the State Fire Marshal's Office to accomplish the provisions outlined below.

Municipalities that choose to establish Community-Right-To-Know programs SHALL:

1) require a business or government agency that handles hazardous substances to fill out a statewide, uniform inventory form on an annual basis.

2) require businesses and government agencies that handle hazardous substances to notify the municipality within 24 hours of any significant changes in their inventory.

3) require businesses and government agencies beginning to handle hazardous substances to fill out the required information within 30 days.

4) make the information readily available to the public.

Municipalities MAY:

1) add any substance it determines to be hazardous to the list of chemicals required to be included in the inventory.

2) require a business or government agency that handles hazardous substances to submit a Material Data Safety Sheet (OSHA) or equivalent information.

3) impose Community-Right-To-Know provisions outside municipal boundaries if emergency response service is provided outside those boundaries or if a fire or other emergency involving hazardous substances would affect people within the municipality.

4) impose fees to compensate for administration costs and inspections.

5) conduct inspections and establish penalties to ensure compliance.

The State Fire Marshal's Office is required to:

1) provide municipalities with inventory forms (The design of which can be taken almost directly from those developed by the Municipality of Anchorage).

2) provide a descriptive summary of the hazardous materials and waste that are required to be included in the inventory. (This is expected to be only several pages long).

3) provide a business, government agency or municipality with a copy of the list of the hazardous substances required to be included in an inventory. (This is basically a definitive list used by the Department of Transportation (federal) and is the most widely and commonly used list on hazardous substances by the general public - It is approximately 100 - 200 pages).

4) develop posting regulations. (Anchorage has already drafted such guidelines and the Department could use those as a basis).

5) provide posting placards to handlers of hazardous substances around the state.

HB 647 also states that the State Fire Marshal's Office MAY:

1) add any substance it determines to be hazardous to the list of chemicals required to be included in the inventory.

2) impose appropriate fees to compensate for the costs of the statewide placard program.

3) provide other education materials related to hazardous substances.

4) request copies of inventories submitted to the municipalities.

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-09

A RESOLUTION SUPPORTING STATEWIDE
HAZARDOUS MATERIAL DISCLOSURE LEGISLATION.

WHEREAS, the handling, storage, transportation, use, processing, and disposal of hazardous materials and hazardous waste occurs in all communities in Alaska, and

WHEREAS, the potential impacts of accidents associated with hazardous materials and hazardous wastes can have devastating impacts on the public health and the environment, and

WHEREAS, knowledge of the types of hazardous materials and hazardous wastes are critical and central to a community's ability to recognize potentially dangerous situations, and

WHEREAS, firefighters, police officers and other public safety and medical professionals often lack the information necessary to respond quickly and safely to emergencies involving hazardous materials and hazardous waste, and

WHEREAS, the public has the right to know what hazardous materials and hazardous wastes are in their community;

NOW, THEREFORE, BE IT RESOLVED that the Alaska Municipal League supports the adoption of state enabling legislation to allow local governments to establish a Hazardous Materials Disclosure (Community Right-to-know) Program. Such a Hazardous Materials Disclosure law should address minimum program requirements for a municipality, including:

a. Notification

b. Placarding

c. Transportation Routing

d. Transportation requirements for selected materials

e. Emergency Coordination Procedures

Alaska MUNICIPAL League

TELEPHONE
(907) 586-1325

105 MUNICIPAL WAY, SUITE 101
JUNEAU, ALASKA 99801

TO: Representative Peter Goll, Chairman
Members of the House Community and Regional Affairs Committee

FROM: Scott A. Burgess, Executive Director

DATE: March 5, 1986

SUBJECT: HB 647 - Hazardous Waste Reporting and Inspection

The Alaska Municipal League supports the concept of HB 647 as another piece of the legislation needed to address a critical and growing threat to the people who live, work and visit in our communities; however, without a financial commitment by the State to fund additional mandates on local government, the mandatory "shall" language referring to municipal action should be changed to "may". The current language appears to place the mandate on municipalities to set up a potentially expensive reporting mechanism. Instead, the language should allow local option by those communities able to implement such a program. The mandatory language requiring the "handler" to report the information should remain. With such a change, the AML supports the program, and appreciates the work of the sponsors of this and other hazardous waste legislation this year. From the attached resolutions debated and adopted by the AML in Fairbanks in November, the Committee can see that hazardous waste and substance issue is a significant one for municipalities.

In addition to the resolutions attached, the following policy language appears on page 8 of the AML 1986 Policy Statement:

"The League supports legislation which would require producers, shippers, distributors, and commercial and industrial users to submit to all affected municipal governments, the Standard Material Safety Data Sheet on all toxic material physical agents being shipped to or through, or stored, manufactured, utilized, produced as a by-prduct , or otherwise found at any time, on the property or rights-or-way of any enterprise or site within the municipal boundaries."

This legislation gives the legislative intent and statutory language needed for the municipalities and the State to work together to begin developing and implementing a "community right to know" program. Many municipalities are faced with problems presented by our advanced, industrialized and often complex society. HB 674 begins to address the problem by allowing information to be collected and posted on the storage and use of hazardous wastes and substances. The legislation is only a part of the solution because we have not adequately address hazardous wastes and substances clean-up, transportation and disposal disposal. Several other bills are before the legislature this session which do attempt to begin addressing these other problems.

I want to reiterate that the solution to the problems presented by hazardous materials in our communities is not for the federal and state governments to mandate additional responsibilities on local governments. Effective laws are part of the solution; individual and corporate responsibility is another part; and, finally, money, whether from fees and penalties on the generator or from society as a whole in the form of taxes.

One final concern in relation to money that I would request the Committee address in reviewing this and other legislation is the adequacy of training funds and programs to adequately prepare local emergency response personnel. Whether it is to be provided by the Department of Environmentla Conservation, the Department of Public Safety, Divivsion of Fire Prevention, or the Department of Military and Veterans Affairs, Division of Emergency Affairs, training in emergency response and clean-up needs to be provided statewide.

Again, the AML is in support of HB 647 with permissive rather than mandatory statute language.

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-09

A RESOLUTION SUPPORTING STATEWIDE
HAZARDOUS MATERIAL DISCLOSURE LEGISLATION.

WHEREAS, the handling, storage, transportation, use, processing, and disposal of hazardous materials and hazardous waste occurs in all communities in Alaska, and

WHEREAS, the potential impacts of accidents associated with hazardous materials and hazardous wastes can have devastating impacts on the public health and the environment, and

WHEREAS, knowledge of the types of hazardous materials and hazardous wastes are critical and central to a community's ability to recognize potentially dangerous situations, and

WHEREAS, firefighters, police officers and other public safety and medical professionals often lack the information necessary to respond quickly and safely to emergencies involving hazardous materials and hazardous waste, and

WHEREAS, the public has the right to know what hazardous materials and hazardous wastes are in their community;

NOW, THEREFORE, BE IT RESOLVED that the Alaska Municipal League supports the adoption of state enabling legislation to allow local governments to establish a Hazardous Materials Disclosure (Community Right-to-know) Program. Such a Hazardous Materials Disclosure law should address minimum program requirements for a municipality, including:

a. Notification

b. Placarding

c. Transportation Routing

d. Transportation requirements for selected materials

e. Emergency Coordination Procedures

BE IT FURTHER RESOLVED that the Alaska Municipal League requests the Alaska Department of Environmental Conservation to work with the Statewide Task Force on Hazardous Materials to develop an equitable allocation of costs by municipal contributions, user fees, etc., by March 1, 1986.

Adopted this 16th day of November 1985.

LEO B. RASMUSSEN, President

ATTEST:

SCOTT A. BURGESS, Executive Director

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-05

A RESOLUTION SUPPORTING ADOPTION AND ENFORCEMENT OF HAZARDOUS MATERIAL TRANSPORTATION LEAD AGENCY AND REGULATIONS.

WHEREAS, transportation of hazardous materials occurs in nearly every community in Alaska, and

WHEREAS, the potential impacts of accidents during the transportation of hazardous materials can have a devastating effect on the public health and environment, and

WHEREAS, there is no State agency to enforce regulations to assure hazardous materials are moved safely on roads in Alaska, and the federal agency charged with this responsibility is not able to adequately enforce regulations, and

WHEREAS, there are no State of Alaska highway transportation regulations for hazardous materials, and

WHEREAS, there are no state or federal regulations in the State of Alaska for the intrastate shipment of hazardous materials by highway;

NOW, THEREFORE, BE IT RESOLVED that the Alaska Municipal League requests the State Legislature to designate and adequately fund a single State agency, such as the Department of Public Safety, to be responsible for assuring hazardous materials are transported safely on highways within the State of Alaska.

BE IT FURTHER RESOLVED, the State of Alaska is urged to adopt regulations for the safe transportation of hazardous material on State highways.

Adopted this 16th day of November 1985.

LEO B. RASMUSSEN, President

ATTEST:

SCOTT A. BURGESS, Executive Director

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-07

A RESOLUTION REGARDING HAZARDOUS WASTE SITE INVESTIGATIONS AND A STATE HAZARDOUS SUBSTANCES RESPONSE FUND.

WHEREAS, nearly 100 potential hazardous waste sites have been identified in the State of Alaska by the U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation for investigation as to possible Superfund sites under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and

WHEREAS, these potential hazardous waste sites are a possible threat to the public health and environment in each of the communities they are located and are spread throughout the State of Alaska, impacting numerous local governments, and

WHEREAS, the U.S. Environmental Protection Agency and Alaska Department of Environmental Conservation have initiated preliminary assessments and site investigations at many of these locations, and the Department of Army and Air Force are conducting similar investigations under the Defense Environmental Restoration Program (DERP) for clean-up of hazardous waste sites at abandoned and active facilities, and

WHEREAS, none of the involved agencies have made adequate efforts to include participation by affected local governments in conducting preliminary assessments, site investigations, or emergency or remedial clean-up actions, and

WHEREAS, it is the right and responsibility of affected local governments to know about and participate in any such determinations, and

WHEREAS, local governments do not have the financial capability or technical expertise to assume responsibility for any hazardous waste sites found in a community, and

WHEREAS, many potential hazardous waste sites will not be cleaned up by the Superfund program, even though a potential threat to the health and environment exists, since the Hazard Ranking System used by the U.S. Environmental Protection Agency is biased against Alaska sites due to low populations exposed;

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-06

A RESOLUTION SUPPORTING STATE ASSUMPTION
OF THE HAZARDOUS WASTE PROGRAM
AND REQUESTING ADEQUATE FUNDING LEVEL.

WHEREAS, protection of the public health and environment from exposures to hazardous waste is one of the top environmental priorities in the State of Alaska, and

WHEREAS, the hazardous waste management program, referred to as the Resource Conservation and Recovery Act (RCRA) program, is currently under the jurisdiction of the U.S. Environmental Protection Agency in the State of Alaska, and

WHEREAS, Senate Bill 503 directed the Alaska Department of Environmental Conservation to develop regulations for assuming authorization of the RCRA program by July 11, 1986, and to implement a State-operated program by July 1, 1987, and

WHEREAS, adequate staffing and trained personnel are essential to prepare for taking over operation of the RCRA, program and to carry out the many complex responsibilities associated with the program.

NOW, THEREFORE, BE IT RESOLVED that the Alaska Municipal League supports assumption of the hazardous waste program by the State of Alaska Department of Environmental Conservation in accordance with the provisions of A.S. 46.03.299 (SB 503), and urges the Governor to actively pursue development of enabling regulations and program capabilities.

BE IT FURTHER RESOLVED that the Alaska Municipal League requests the Alaska Legislature to fund the State hazardous waste management program at an adequate level to develop needed regulations and for the effective implementation of a program suited to Alaska's conditions.

Adopted this 16th day of November 1985.

LEO B. RASMUSSEN, President

ATTEST:

SCOTT A. BURGESS, Executive Director

RESOLUTION OF THE ALASKA MUNICIPAL LEAGUE

RESOLUTION NO. 86-08

A RESOLUTION REQUESTING THAT THE LEGISLATURE AND GOVERNOR FULLY FUND THE ANNUAL HAZARDOUS WASTE CLEANUP PROGRAM SPONSORED BY THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

WHEREAS, the State of Alaska is responsible for protecting the health and safety of its citizens, and

WHEREAS, at present there is no location within Alaska available for the proper disposal of hazardous wastes, and

WHEREAS, a large amount of hazardous wastes within Alaska comes from small quantity generators (less than 100 kilograms per month of hazardous wastes or one kilogram per month of acutely hazardous material) as defined by the Resource Conservation and Recovery Act, and

WHEREAS, such small quantity generators have neither the financial resources nor the technical expertise to ship hazardous wastes to an approved disposal site outside of the State of Alaska, and

WHEREAS, a cutback or cancellation of the annual Hazardous Clean-up Program may result in the unauthorized dumping of significant amounts of hazardous wastes within the State of Alaska, and

WHEREAS, the Alaska Department of Environmental Conservation has been mandated by the State Legislature to provide this program to an increasing number of communities, and

WHEREAS, there are additional Alaskan communities located on the existing road network which have not been serviced by this program in the past, and which may have significant amounts of hazardous wastes which need proper disposal;

NOW, THEREFORE, BE IT RESOLVED by the Alaska Municipal League that the State Legislature and the Governor fully fund the cost of the Annual Hazardous Waste Clean-up Program for 1986 and 1987, at an amount in excess of $500,000.

Resolution Passed by the Alaska State Medical Association and
the Anchorage Medical Society 1985

SUBJECT: COMMUNITY RIGHT-TO-KNOW

WHEREAS, hundreds of thousands of gallons of hazardous substances are released into Alaskan air, lands and water by hundreds of documented industrial and transportation accidents each year (1); and

WHEREAS, residents and entire communities may be exposed to these accidentally released hazardous sustances and physical agents as a result of industrial and transportation accidental release of hazardous sustances or physical agents; and

WHEREAS, the public health can be best served by a preventative approach whereby members of the general community, emergency responders, and health care providers have adequate information regarding the existence and identity of hazardous substances and physical agents in their communities; and

WHEREAS, several states and municipalities have adopted or are considering for adoption community right-to-know legislation including New Jersey, Cincinnati, San Diego, New York, Connecticut, and Massachussetts (2); Therefore be it

RESOLVED, that the Alaska State Medical Association supports the establishment of statewide and local community right-to-know legislation with at least the following elements:

a. Mandatory reporting by employers in the form of a standard material safety data sheet (MSDS) to a public agency such as the health department or fire department of all toxic material physical agents which may be stored, manufactured, utilized, produced as a by product, transported to or from, or otherwise found at any time on the property or right of way of any enterprise or site; and

b. Full access by the general public, health care providers, and emergency responders to this public information; and

c. An associated educational program for employers, the general public health care providers, emergency responders, and public health professionals and officials; and

d. Sufficient funding for the legislation to be fully effective.

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(1) Based on data provided the Alaska Health Project by the Alaska Department of Environmental Conservation

(2) Worobec, MR, et al. Chemical Right-To-Know Requirements: Federal and State Laws and Regulations - A Status Report. Bureau of National Affairs: Washington, D.D, 1984.

Resolution Passed by the Alaska Public Health Association 1985

ADVOCATING COMMUNITY RIGHT-TO-KNOW LEGISLATION

The Alaska Public Health Association:

Noting that hundreds of thousands of gallons of hazardous substances are released into Alaskan air, lands and water by hundreds of documented industrial and transportation accidents each year [1]; and

Observing that not only workers may be exposed to these accidentally released hazardous substances and physical agents, but that nearby residents and entire communities may be exposed as a result of industrial and transportation accidental release of hazardous substances or physical agents; and

Recognizing that the public health can be best served by a preventive approach hereby members of the general community, emergency responders, and health care providers have adequate information regarding the existence and identity of hazardous substances and physical agents in their communities; and

Recalling that several states and municipalities have adopted or are considering for adoption community right-to-know legislation, including New Jersey, Cincinnati, San Diego, New York, Connecticut, and Massachusetts [2]; and

Remembering that ALPHA and the national organization APHA have already gone on record as supporting the principle of right-to-know legislation [3]; therefore

Advocates, endorses, and supports the establishment of both statewide and/or local community legislation with at least the following elements:

a. Mandatory reporting by employers in the form of a standard material safety data sheet (MSDS) to a public agency such as the health department or fire department of all toxic materials and physical agents which may be stored, manufactured, utilized, produced as a by product, transported to or from, or otherwise found at any time on the property or right of way of any enterprise or site; and

b. Full access by the general public, health care providers, and emergency responders to this public information; and

c. An associated educational program for employers, the general public, health care providers, emergency responders, and public health professionals and officials; and

d. Sufficient funding for the legislation to be fully effective; and

Provides that copies of this resolution will be distributed to:

a. The Governor
b. All members of the Alaska Legislature
c. All members of the ALPHA
d. Major newspapers in Alaska in the form of a press release

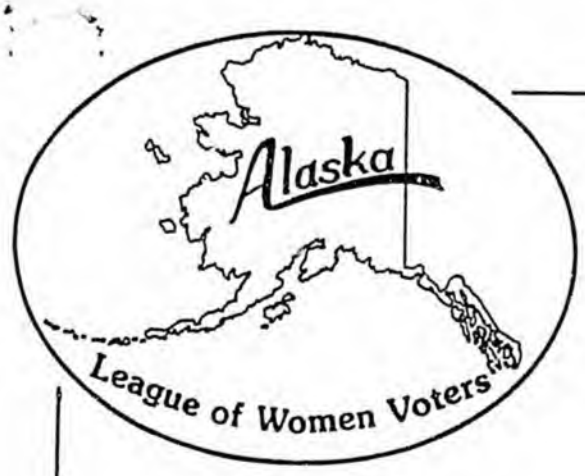
[1] Based on data provided the Alaska Health Project by the Alaska Department of Environmental Conservation.

[2] Worobec, M.R. et all, Chemical Right-To-Know Requirements: Federal and State Laws and Regulations - A Status Report. Bureau of National Affairs: Washington, D.C., 1984

[3] In support of Right-To-Know Resolution passed by ALPHA, 1983.

Informing Workers of Occupational Health Risks Policy Statement adopted by APHA Governing Council, November 2, 1977.

Support for the proposed Labeling Standard of the Occupational Safety and Health Administration. Policy Statement adopted by APHA Governing Council, October 22, 1980.



HB. 647

Presented By

League of Women Voters of Alaska

March 20, 1986

The League of Women Voters is a nationally based organization that has state and local grassroot organizations.. Positions are arrived at by consensus of the grassroots members. Issues to be addressed are determined by consensus and the substantive focus is on good government process and sound public policy.

50,000 chemicals have been created since 1940. The derived products are integrated into our lifestyles and have enhanced our quality of life. The problem we must resolve is how public policy makers can promote accountability for toxic products demanded by the multitudinous needs of our society. A more critical aspect of the cost benefit discussion is how will our policy makers protect the health of citizens and minimize the detrimental loss of human resources who might be victims of accidental exposure. The incidence of accidental exposure is skyrocketing nationally; the consequence is a quiet revolution in the health care community which is forced to play "catch up " in curing exposure victims. Ironically increased incidence of exposure is providing human "guinea pigs" , a pathological record based on the tragic sagas of citizens who have lost health and life.

Nationally public policy makers are seeking solutions that are relatively inexpensive and which minimize onerous regulation. Community Right to Know statutes which insure the availability of critical information in the time of crisis is a widely accepted move toward accountability. HB647 has a sound framework similar to law enacted in other states; Alaskan lawmakers would be undertaking policy that has a legal track record.

The League of Women Voters finds one serious concern with the proposed legislation. Communities should be required to comply with the proposed legislation. Case in point are incidents around the state best exemplified by the 1984 fire which destroyed the water treatment plant in Emmonak, Alaska. Local governmental authorities needed quick access to technical information for determining emergency measures be taken to protect the populace. Despite the ignition of many chemicals which often creates synergistic effects, local residents were not evacuated from the scene. In fact many citizens watched the fire within close proximity. The consequence of future ill health from breathing chemical by-products may never be related to watching the treatment plant burn.

A second area of concern is the question of whether the hazardous materials list cited in the legislation provides the most comprehensive list of chemicals. We would recommend the inclusion of any comparably hazardous chemical listed under the Toxic Substances Control Act and Federal Insecticide, Fugicide and Rodenticide Act if they are not addressed under the Federal Department of Transportation list.

Your willingness to address this public policy problem is commendable. Thank you for the opportunity to testify. We are willing to provide additional documentation.

Respectfully Submitted:
Mary Whitmore Core
Chairperson, Natural Resource Portfolio
1280 Fritz Cove Road
Juneau, Alaska 99801
907/789-2481

DELIVER TO: JPOM

ORIGINAL

SENT: 03/03/86 TIME: 15:51

FROM: JEAN MILLER

SUBJECT: POM

PRINT DATE: 03/03/86 TIME: 16:02

2

TO: [redacted]

FROM: DR. JOHN P. MIDDAUGH
3010 GLACIER STREET
ANCHORAGE, AK 99508 PHONE: 333-9349

SUBJECT: HB 647 - HAZARDOUS SUBSTANCES

THE ALASKA STATE MEDICAL ASSOCIATION, ALASKA PUBLIC HEALTH ASSOCIATIONN, AND ANCHORAGE MEDICAL SOCIETY, SUPPORT HAZARDOUS SUBSTANCES COMMUNITY RIGHT TO KNOW LEGISLATION. WE URGE PASSAGE OF LEGISLATION THAT WILL REQUIRE MANDATORY REPORTING BY EMPLOYERS TO A PUBLIC AGENCY, FULL ACCESS TO INFORMATION BY THE PUBLIC AND APPROPRIATE EDUCATIONAL PROGRAMS FOR EMPLOYERS.

Alaska Health Project

Providing information about hazardous materials on the job and in the community.
417 West Eighth Avenue, Anchorage, Alaska 99501 (907) 276-2864

Testimony on House Bill 647

Presented By

Alaska Health Project

March 12, 1986

Alaska Health Project (AHP) is a private non-profit organization dedicated to providing information and education about hazardous materials on the job and in the community. We appreciate the opportunity to testify in support of House Bill 647, the so called "community right to know bill"

Now, more than ever, hazardous materials management has become a highly charged community issue drawing the attention of community planners and decisions-makers.

Access to information about hazardous materials is central to the development of local hazardous materials management programs. HB 647 provides communities with the mechanism for accessing such information. All Alaskan communities should be required to develop right to know programs. Specifically, HB 647:

* Establishes a workable framework for development of local community right to know programs.

* Prevents conflicting local ordinances by requiring uniform program elements.

The bill needs strengthening in the area of public access to hazardous materials information. While the intent is to allow for such access no provisions have been included in the current version of the legislation.

There Is Alaskan Support For Community Right To Know Programs

* In 1985, the Alaska Municipal League passed a resolution supporting adoption of state enabling legislation to allow local governments to develop CRTK programs.

* A 1983 survey conducted by Hellenthal & Associates shows that over 93% of 500 randomly selected Anchorage residents

support the creation of a community right to know law.

* The Anchorage Hazardous Waste Task Force, a multi-representational group of business, labor, health, and citizen interests, recently drafted a local CRTK ordinance (1986). Many of the elements of this ordinance are incorporated into HB 647.

There Is Precedence For The Bill

There have been a number of hazardous materials incidents in Alaska impacting communities and the health and safety of emergency responders. The recent situation in Moose Pass is underscores this fact.

Perhaps best surmizing all of these incidents is a statement by the Fairbanks Hazardous Materials Commission upon investigating the hydrcchloric acid spill that occurred in the city in 1983.

> " The fact that the Fairbanks North Star Borough has not had a serious hazardous materials incident resulting in loss of life or environmental quality damage is largely a matter of luck and the activities of individual agencies working on their own to address preceived needs within their own domains."

Clearly it's time to take the "luck" out of hazardous materials planning in Fairbanks and elsewhere in the state. Literally thousands of pounds of hazardous materials are shipped annually to Alaskan ports via air, rail, barge, and road transportation. These ports include both urban and rural Alaska including Nome, Kotzebue, Dillingham, Whittier, and others. Some o_ the materials shipped such as chlorine, hydrochloric acid, and amonia could quite possibly require community evacuation if accidentally released. Other materials include chemcials such as toluene, and xylene which, at certain concentrations, are considered priority pollutants under the Clean Water Act.

Communities need the guidance and structure provided by HB 647. The public is deserving of this information. Firefighters and emergency responders are long overdue for this vital information in order to protect themselves and the community. Alaska Health Project urges the Alaska legislature to join other Alaskans who who support passage of House Bill 647.

We are available to provide documentation of hazardous materials incidents in Alaska and information on hazardous materials shipped into Alaskan ports. Thank you.

Municipality of Anchorage

POUCH 6-650
ANCHORAGE, ALASKA 99502-0650
(907) 561-1906

TONY KNOWLES, MAYOR

SOLID WASTE SERVICES DEPARTMENT

February 27, 1986

Representative Peter Goll
House Community & Regional Affairs Committee
P.O. Box V
Juneau, AK 99811

Dear Representative Goll:

The Municipality of Anchorage has reviewed HB 647 requiring municipalities to establish reporting and inspection programs for hazardous materials and wastes (i.e. Community Right-to-Know program). The Municipality supports the bill as drafted with only a few minor exceptions.

The substance of the bill is consistent with a Community Right-to-Know ordinance now being considered in Anchorage. As a result, we foresee no conflicts between the proposed Anchorage program and the program envisioned in HB 647, provided the Department of Public Safety works closely with us in developing the reporting forms, placarding system, etc. In fact, in developing the Anchorage Community Right-to-Know ordinance many of these issues have already been extensively investigated and by working with the Municipality, the Department of Public Safety can potentially save much time and effort in implementing the statewide program.

The concept of statewide hazardous materials disclosure legislation was supported by the Alaska Municipal League in Resolution No. 85-12. House Bill 647 addresses all the elements recommended for a statewide program with the exception of transportation routing and transportation requirements for hazardous materials and wastes.

Even though Anchorage has been developing an ordinance to provide the type of information required by HB 647, there is a great deal of importance for a consistent statewide program. Otherwise, a business handling hazardous materials may face a myriad of vastly different local programs if each municipality independently adopts a community right-to-know program. House Bill 647 will establish a workable framework for a consistent statewide program.

One of the few concerns we have with the bill as drafted is the requirement that every municipality "shall" establish a hazardous materials inspection and reporting program. In draft legislative language the Municipality had previously submitted, we had proposed that such a program be discretionary. We recommend that the word "may" be substituted for "shall". While it may be true that most

municipalities should have a program, it cannot be assumed it is necessary in all cases. Municipalities should be given the choice as to whether this program is a priority in their community.

The only other concern with the bill is in the area of public access to information submitted on hazardous materials and wastes. Provisions should be added to the bill to make it clear that the public can obtain any information on the types of hazardous materials and wastes at a particular location.

Thank you for the opportunity to comment on HB 647.

Sincerely,

Jim Sweeney
Project Manager

/ld

Mayor: Juanita Helms

March 5, 1986

Representative Katie Hurley
Alaska State Legislature
Pouch V
Juneau, AK 99811

Dear ~~Representative~~ Katie Hurley:

The Fairbanks North Star Borough has reviewed HB 647, which addresses local reporting and inspection programs for hazardous materials and hazardous waste. We support the concept of the legislation. However, we feel that the bill should not require municipalities to enact these programs, but rather allow local governments to do so if such programs are desired. The mandatory nature of the bill, as written, would require all municipalities in the State to conduct these programs, even though most municipalities have neither the expertise nor the money and many may not wish to do so.

Therefore, we would suggest that the mandatory "shall" used in subsections 29.35.500(a,b,c,d and f) should be replaced with the word "may". The Borough would strongly support a bill which included these revisions and I urge you to lend your support to such a substitute.

Sincerely,

Juanita

Juanita Helms
Borough Mayor

JH/pld

cc: Interior Delegation
Linda Anderson
Scott Burgess, AML

P.O. Box 1267 Fairbanks, Alaska 99707 (907) 452-4761

AKPIRG
ALASKA PUBLIC INTEREST RESEARCH GROUP
Post Office Box 1093 / Anchorage, Alaska 99510 / (907) 278-3661

Representative Kative Hurley
Box V
Juneau, Alaska 99811

7 March 1986

Dear Rep. Hurley.

We are writing to express our wholehearted support for HB 547, the Community Right-to-Know legislation. Although we have not been actively involved in the issue, we are very familiar with it and we are extremely concerned that this legislation pass in as comprehensive a form as possible.

We commend you on the work you and the committee have devoted to the bill and we encourage you to see it through to the Senate as soon as possible. If there is anything we can do from our perspective, please call on us.

Sincerely,

Jeffrey R. Bohman

Jeffrey R. Bohman
Executive Director

Alaska Environmental Lobby, Inc.

204 N. Franklin Street, Suite Juneau, Alaska 99801 907-586-2345

March 20, 1986
Testimony on HB 647 Community Right to Know
By Bill Slayton, Alaska Environmental Lobby

On behalf of our 20 member groups, the Alaska Environmental Lobby commends Representative Hurley and co-sponsors for introducing HB 647. Alaska is in the process of deploying a tough arsenal of hazardous material laws and regulations. HB 647 stresses the vital important need for communities to have access to up to date and accurate information about hazardous materials stored and used within their boundaries.

Less than a month ago, an incident near Moose Pass indicated how important such information is to a community. According to the Anchorage Daily News, innaccurate information about the indentity of the chemicals in the tanker made it impossible for emergency workers to do anything but clear the area and hope for the best. However, residents lived with the noxious mixture for a whole night after they made their initial calls for help. What if the tanker had been carrying a more highly toxic chemical? What if the tank car had exploded, and lit up the two nearbye propane tanks? As it is, the exposed families sufferred nose bleeds, vomiting, and now have to worry about possible long-term health effects to their children.

These people had a right to know that their neighborhood was periodically being used as a storage ground for tanker cars of noxious chemicals. The emergency response personel had a right to know what risks were involved working with the tanker. HB 647 recognizes this right, requiring those who use and store hazardous materials to submit accurate information about type, amount, and location of those materials. With accurate information about the chemical in the tanker, families might have been evacuated more quickly. Emergency response personel might have been able to work with the spill with greater certainty about what was going to happen.

The placarding, reporting, and inspection provisions of HB 647 are a good start toward developing a sound system of information to the people who need it--Alaska's communities and emergency response workers. We urge the swift passage of this bill, and thank you for the opportunity to testify.

DEPARTMENT OF PUBLIC SAFETY

POSITION PAPER - CSHB 647 (C&RA)

Support

March 19, 1986

CSHB 647 (C&RA) - An Act establishing requirements for warning placards and for municipal reporting programs for hazardous materials and hazardous waste; and providing for an effective date."

The Department of Public Safety supports CSHB 647 (C&RA) with minor amendments.

The bill will provide a common framework for placarding structures housing hazardous materials and wastes which will alert emergency services responders and the public of potential dangers associated with its contents.

Municipalities which establish programs for the reporting of hazardous materials and wastes will receive reports of these on a standard inventory form developed by the Division of Fire Prevention and furnished to the handlers of hazardous materials and wastes.

The bill establishes a uniform approach to allow the recognition and identification of places handling hazardous materials and wastes.

Robert J. Sundberg

STATE OF ALASKA 1986 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date : _____

REQUEST

Bill/Resolution No. : CSHB 647 (C&RA)
Title : "An Act establishing requirements for warning placards and for municipal programs for hazardous materials..."
Sponsor : Rep. Hurley
Requestor : House State Affairs
Date of Request : 3/19/86

FISCAL DETAIL

Agency Affected : Public Safety
BRU : Fire Prevention

Components : Fire Prevention

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES		0	0	0	0	0
TRAVEL		0	0	0	0	0
CONTRACTUAL		50.8	9.8	10.3	10.8	11.4
SUPPLIES		4.9	5.1	5.4	5.7	6.0
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		55.7	14.9	15.7	16.5	17.4
CAPITAL		0	0	0	0	0
REVENUE		6.8	6.8	6.8	6.8	6.8

FUNDING : (Thousands of Dollars)

GENERAL FUND		55.7	14.9	15.7	16.5	17.4
FEDERAL FUNDS						
OTHER						
TOTAL		55.7	14.9	15.7	16.5	17.4

POSITIONS :

FULL-TIME		0	0	0	0	0
PART-TIME						
TEMPORARY						

ANALYSIS : Attach a separate page if necessary

See attached.

Prepared by : Gordon E. Brunton
Division : Fire Prevention
Phone : 465-4331
Date : 3/19/86

Approved by Commissioner : _____
Date : 3/31/86
Agency : Public Safety

Distribution (by Agency preparing fiscal note) :
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

10/25/85

CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. CSHB 647 (C&RA)

ASSUMPTIONS

The magnitude of the hazardous materials and wastes handled in Alaska is unknown, but estimated to be in the thousands.

The Department of Environmental Conservation estimates that there are between 5,000 and 10,000 hazardous waste producers.

The program will be in position to start up on January 1, 1987. The bulk of the summary and comprehensive lists of hazardous materials and wastes, the inventory forms and placards will be produced and distributed during FY87, requiring only maintenance levels in contractual costs in succeeding years.

It is anticipated that 20% of the costs to produce and distribute the placards will be recovered each year.

A 5% inflation factor was used for succeeding years.

CONTRACTUAL

73322	Telephones $100/month	1.2
73381	Postage, mailing lists, forms, placards	4.0
73540	Advertising: hearing notices, public awareness messages	2.6
73560	Printing:	
	Typesetting placards, lists, forms	1.5
	Print 20,000 summary lists, 2 pages ea.	1.0
	Print 2,000 comprehensive lists, 100 pages ea.	5.3
	Print 10,000 initial inventory forms (3 pt carbon)	0.6
	Print 5,000 continuation inventory forms (3 pt carbon)	0.3
	Print 10,000 placards @ $3.00 ea	30.0
73563	Subscriptions	
	Trade Journals	0.3
	Safety Sheets on Micro Fiche	4.0
	Total Contractual	$50.8

CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. CSHB 647 (C&RA)

SUPPLIES

74220	Educational/Instructional training materials, pamphlets, books, guides	2.0
74229	Stationery & office supplies	0.4
74609	Audio Visual training supplies, films, videos, 5 ea X $500	2.5
	Total Supplies	4.9

Bill No. Committee Substitute for House Bill 647 (State Affairs)

Date March 27, 1986

Title "An Act establishing requirements for warning placards and for municipal reporting programs for hazardous materials and hazardous waste."

Contact: Eileen Plate 465-2700
Richard Arab 465-4856

Committee Substitute for House Bill 647 provides for the placarding of places where hazardous materials and hazardous wastes are located; and further provides that municipalities may establish "community right-to-know" programs with respect to hazardous materials and wastes.

The Department of Labor currently requires employers to provide information to their workers on toxic and hazardous substances to which they may be exposed. However, there is presently no requirement that such toxic and hazardous substances be placarded so that emergency response agencies are aware of the existence of such toxic and hazardous materials. This information could be vital to emergency response personnel because such materials are often volatile and can cause fires to spread faster than anticipated. The placarding requirements of this bill should, therefore, assist emergency responsive personnel in protecting both the public and property.

Further, the opportunity provided in the bill for municipalities to establish hazardous materials and wastes reporting and inspection programs would enable municipalities to inventory such materials and thereby focus action plans, including the proper training and equipping of emergency response personnel, on specific hazardous materials and substances in their jurisdictions.

The Department of Labor appropriately would not have an active role in the implementation of Committee Substitute for House Bill 647. However, because it does afford an opportunity for additional protection for emergency response workers, the department supports its proposed provisions.

The educational and technical assistance that the Department of Labor would provide in designing warning placards, as outlined in proposed Section 18.70.310(b), and in furnishing information on hazardous materials as outlined in proposed Section AS 29.35.530, would not have a fiscal impact on the Department.

APPROVED:

Jim Robison

Jim Robison, Commissioner
Department of Labor

POSITION PAPER/Department of Labor

STATE OF ALASKA 1986 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date : _____

REQUEST

Bill/Resolution No. : CSHB 647 (SA)
Title : "An Act establishing requirements for warning placards and for municipal reporting programs for hazardous materials..."
Sponsor : Hurley, Koponen; Davis, Goll...
Requestor : House State Affairs
Date of Request : 3/24/86

FISCAL DETAIL

Agency Affected : Labor
BRU : Labor Standards and Safety
Components : Occupational Safety & Health

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING : (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS :

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : Attach a separate page if necessary

Prepared by : Robert J. Bacolas, Sr. Phone : 465-4870
Division : Labor Standards & Safety Date : 3/27/86

Approved by Commissioner : Jim Robison Date : 3/27/86
Agency : Labor

Distribution (by Agency preparing fiscal note) :
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

10/25/85

Bill No. Committee Substitute for House Bill 647 (C&RA)

Date March 17, 1986

Title "An Act establishing requirements for warning placards and for municipal reporting programs for hazardous materials and hazardous waste."

Contact: Eileen Plate 465-2700
Richard Arab 465-4856

Committee Substitute for House Bill 647 provides for the placarding of places where hazardous materials and hazardous wastes are located; and further provides that municipalities may establish "community right-to-know" programs with respect to hazardous materials and wastes.

The Department of Labor currently requires employers to provide information to their workers on toxic and hazardous substances to which they may be exposed. However, there is presently no requirement that such toxic and hazardous substances be placarded so that emergency response agencies are aware of the existence of such toxic and hazardous materials. This information could be vital to emergency response personnel because such materials are often volatile and can cause fires to spread faster than anticipated. The placarding requirements of this bill should, therefore, assist emergency responsive personnel in protecting both the public and property.

Further, the opportunity provided in the bill for municipalities to establish hazardous materials and wastes reporting and inspection programs would enable municipalities to inventory such materials and thereby focus action plans, including the proper training and equipping of emergency response personnel, on specific hazardous materials and substances in their jurisdictions.

The Department of Labor appropriately would not have an active role in the implementation of Committee Substitute for House Bill 647. However, because it does afford an opportunity for additional protection for emergency response workers, the department supports its proposed provisions.

The technical assistance that the Department of Labor would provide to the Division of Fire Protection in designing warning placards, as outlined in proposed Section 18.70.310(b), would not have a fiscal impact on the Department.

APPROVED:

Robert W. Jordan
for Jim Robison, Commissioner
Department of Labor

POSITION PAPER/Department of Labor

STATE OF ALASKA 1986 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date : _____

REQUEST

Bill/Resolution No. : CSHB 647 (C&RA)
Title : "An Act establishing requirements for warning placards and for municipal reporting programs for hazardous materials..."
Sponsor : Hurley, Koponen, Davis, Goll...
Requestor : House State Affairs
Date of Request : 3/14/86

FISCAL DETAIL

Agency Affected : Labor
BRU : Labor Standards and Safety
Components : Occupational Safety & Health

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING : (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS :

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : Attach a separate page if necessary

Prepared by : Robert J. Bacolas, Sr. Phone : 465-4870
Division : Labor Standards & Safety Date : 3/17/86

Approved by Commissioner : for Jim Robison Date : 3/17/86
Agency : Labor

Distribution (by Agency preparing fiscal note) :
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

10/25/85

POSITION PAPER/Department of Health & Social Services

POSITION PAPER (AMENDED)

HOUSE BILL 647

"An Act requiring Municipalities to establish reporting and inspections programs for hazardous materials and hazardous waste."

This bill requires municipalities to establish hazardous materials reporting and inspection programs to ensure the safety of individuals who may come in contact with the materials. Under the terms of HB 647, individuals who utilize such materials must annually submit a detailed inventory and notify the municipality within 24 hours any changes in the status of the inventory. In addition, such individuals must place warning placards to notify the public of the presents of the materials.

Position

The Department of Health and Social Services supports HB 647 and its intent to protect the general public and inform emergency response personnel regarding the type and location of hazardous materials in a community. The right of public awareness to the presence of hazardous materials is an effective means of minimizing the dangers. Implementation of this bill will be the responsibility of the Department of Public Safety, Division of Fire Prevention and local municipalities. The department will work with the responsible agencies to provide assistance in coordinating with emergency medical services personnel and other appropriate health care providers. The Department of Health and Social Services feels the development of guidelines by the Department of Public Safety relating to placarding will be a positive step in developing a uniform statewide system and has our endorsement.

Recommended by: Elizabeth Ward

Elizabeth Ward, M.N.
Director
Division of Public Health

Date: 3/6/86

Approved by: John R. Pugh

John R. Pugh, Commissioner
Department of Health and
Social Services

Date: 3/10/86

STATE OF ALASKA 1986 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date : _____

REQUEST

Bill/Resolution No. : HB 647
Title : An act requiring municipalities to establish reporting and inspection programs for haz. materials and haz. waste;
Sponsor : Katie Hurley
Requestor : Peter Goll (C&RA and SA
Date of Request : 2/27/86

FISCAL DETAIL

Agency Affected : Environmental Conservation
BRU : Environmental Quality

Components : Director's Office

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING : (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS : NONE

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : Attach a separate page if necessary

Prepared by : Keith Kelton
Division : Environmental Quality
Phone : 465-2640
Date : 2/27/86

Approved by Commissioner : Bill Ross
Date : 3/4/86
Agency : Department of Environmental Conservation

Distribution (by Agency preparing fiscal note) :
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

10/25/85

STATE OF ALASKA 1986 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date : _____

REQUEST

Bill/Resolution No. : HB 647
Title : An act requiring municipalities to establish reporting and inspection programs for haz. materials and haz. waste;
Sponsor : Katie Hurley
Requestor : Peter Goll (C&RA and SA
Date of Request : 2/27/86

FISCAL DETAIL

Agency Affected : Environmental Conservation
BRU : Environmental Quality

Components : Director's Office

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING : (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS : NONE

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : Attach a separate page if necessary

Prepared by : Keith Kelton
Division : Environmental Quality
Phone : 465-2640
Date : 2/27/86

Approved by Commissioner : Bill Ross
Agency : Department of Environmental Conservation
Date : 3/6/86

Distribution (by Agency preparing fiscal note) :
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

10/25/85

Department of Environmental Conservation
Comments on HB 647

HB 647 would require municipalities to adopt "community right to know" programs according to a prescribed framework. The purpose of "community right to know" programs is to ensure that local governments and emergency response personnel have information about hazardous materials and wastes located within their jurisdictions.

Bill Summary

The bill requires municipalities to adopt the following requirements:

1. Those who "handle" hazardous materials or wastes must:

    a) Report on these substances annually to the municipality

    b) Report on movement of hazardous materials or wastes within 24 hours

    c) Report on additions of hazardous materials or wastes within 30 days

2. Placards identifying sites where hazardous wastes or waste area are located must be posted.

Municipalities may conduct inspections to ensure that the requirements are carried out and may collect fees.

The bill provides a coordinating role to the Division of Fire Prevention (DFP) in the Department of Public Safety. The DFP is to provide:

1. a summary of hazardous materials and wastes required to be included in an inventory.

2. inventory forms

3. placards and guidelines for posting

The Department of Environmental Conservation (DEC) is not significantly affected by the bill.

DEC Comments

DEC supports the idea of local community right to know programs. Local firefighters would benefit from knowing what types of substances are located in facilities they might need to enter or approach in emergency situations. The Alaska Municipal League

passed a resolution asking that a standardized format for community right to know programs be established to ensure consistency between the programs that are passed. This bill is intended to do that.

While the Department supports the idea of community right to know programs, we have several comments on this bill. HB 647 has several mandatory requirements for municipalities. It would appear to DEC that mandatory requirements for municipalities are not appropriate. Adoption of a community right to know ordinance should be left to the initiative of each municipality. The provisions would result in a considerable workload for a municipality. We are not aware that there are many municipalities that are ready to assume this burden.

To obtain information on the locations of hazardous substances, two general approaches are available. One is to set up a new series of reporting requirements. Another approach would be to use existing sources of information provided by applications and other reports under the federal Resource Conservation and Recovery Act (RCRA). This bill takes the first approach and does create substantial reporting requirements. For hazardous wastes, (not materials) information on storage, transportation, and treatment facilities is available from RCRA documents. Using this information is an approach the Committee might want to consider. The bill then, except for the placard requirements,

could be focused on hazardous materials. Placarding is a useful and appropriate requirement for both materials and wastes.

Another important question is when reports are required. The bill requires annual inventories, notice of movement, and notice of significant additions of hazardous wastes and materials.

Another approach might be to focus the notice requirements on identifying locations where hazardous wastes and materials are normally located. This would seem to be the type of information needed by firefighters. This could reduce the paperwork burden significantly. If this approach were chosen, we would suggest a change to the inventory requirements to allow for initial submittal of a floor plan, and a description of the types and amounts of materials that would be located at a site. Then, a municipality would need to be notified only when substantial changes were made. (This would require deletion of 29.35.500(c) and (d) and modification of 29.35.500(a).

The level of reporting of wastes might be another area the Committee would want to look at. The bill now requires reporting of every waste or substance. Another approach might be to require reporting on classes of wastes or substances. The federal Department of Transportation has a classification system that groups wastes and materials into approximately twenty groups. It could be appropriate to ask for reporting by class, to reduce the complexity of information that must be compiled.

We are not entirely certain about the intent of some of the definitions. The definition of "handles" excludes transporters and includes other terms that could be redundant.

The definition of "hazardous material" is unclear to us, in several respects. The relationship of the various clauses and the extent of the exceptions is hard to understand.

Alaska State Legislature

Representative Mike Davis

Pouch V
Juneau, Alaska 99811
(907) 465-4930/4941

Interim Office:
P.O. Box 31435
Fairbanks, Alaska 99708

MEMORANDUM

To: All House Members

From: Rep. Mike Davis

Date: March 12, 1986

Re: Hazardous Waste Generation Report

The Department of Environmental Conservation has recently received the Alaska Hazardous Waste Generation Study report written by the Pennsylvanian consulting firm, Environmental Resources Management. The report outlines the amount, type, and location of hazardous wastes being generated in Alaska, and recommendations are also made for dealing with and disposing of the wastes. Significantly, in-state generators of hazardous wastes are now expected to produce about 152,000 tons per year of these wastes, whereas previous estimates were that only 100.0 - 400.0 tons per year would be produced.

A consultant from Environmental Resources Management will present the report in the Governor's Conference Room at 1:30 pm on Monday, March 17.

Study: Officials unprepared for waste accidents

by David Goeller
Associated Press

WASHINGTON — Three-fourths of the nation's police and firemen are inadequately trained to respond to accidents involving transportation of hazardous materials, a new congressional study says.

And even if a trained team reaches the scene of a ruptured tank truck, improper labeling of the vehicle's contents can produce a wrong, dangerous response, the Office of Technology Assessment said in a study released today.

OTA quoted state officials as saying that from 25 percent to 50 percent of the identification placards required on hazardous material shipments are incorrect and that shipping documents "are sometimes incomplete or inaccessible."

"Emergency crews must assess the risks of the hazardous material and make decisions on how to respond based on information that may or may not be accurate," said OTA, a nonpartisan congressional agency.

"The wrong response to a hazardous material endangers both emergency personnel and the neighboring communities," said the study, which urged adoption of federal training and response standards to replace a mishmash of state requirements.

Asked why so many placards are incorrect, Edith Page, who directed the study, said: "In some cases it's ignorance. In some cases it's carelessness."

> 'Three-quarters of the first responders are not adequately trained to deal with hazardous substances.'
>
> — Edith Page, director of OTA study

OTA said the most pressing need is to develop better ways of training safety personnel to handle accidents involving the 500,000 daily shipments of hazardous materials on U.S. highways, rail lines and waterways.

"Three-quarters of the first responders are not adequately trained to deal with hazardous substances," Page told a news briefing.

She said that a joke among response personnel is that you bring tennis shoes and binoculars to a toxic or nuclear material spill — using the shoes to quickly get a safe distance away and the binoculars to read the placard.

"Then you call for expert help," Page said. "This is often said in jest, but there's a strong element of truth in it."

OTA said that while some states and metropolitan areas have good response programs, "most first responders in smaller urban and rural areas have not been trained to deal with hazardous materials, despite many existing training programs.

"No national standards for training programs are currently in place, leading to the independent development of different training programs, some of which are inadequate," the study said.

Although it did not specifically urge more federal spending, OTA said continued support for state enforcement programs "is important, since federal inspection forces are shrinking due to budget constraints."

OTA recommended better training and a national license for operators of vehicles carrying hazardous substances in an effort to reduce the average of 11,462 accidents the Transportation Department says occurred yearly between 1973 and 1983.

In most states, Page said, a truck driver needs no special license for hazardous cargoes. "The nephew or son of the owner can drive a gasoline truck," she said.

Page said OTA doesn't trust Transportation Department figures indicating that the incidence of accidents involving hazardous materials is decreasing.

"The data collected is so poor we don't know whether things are getting better or worse."

The Frontiersman 3/14/86

Environment

Hurley bill would require report of contents of hazardous goods

By JULIE SULLIVAN
Frontiersman staff

While emergency personnel worked to contain escaping formaldehyde almost two weeks ago at Moose Pass, Rep. Katie Hurley was fighting to let communities know ahead of time what hazardous substances might be in their own backyard.

Hurley's community right-to-know bill, introduced Feb. 17, would provide residents and emergency response personnel with information about what hazardous chemicals are in their area.

House Bill 647, was co-sponsored by Reps. Nilo Koponen, Mike Davis, Peter Goll, Pat Pourchot, M.M. Miller, Don Clocksin, Rick Uehlig, and Max Grenberg.

The bill would set up a statewide network under which cities could set minimum reporting and posting requirements on hazardous substances in their vicinity.

It would not seriously change the laws governing the production, storage or disposal of hazardous materials, according to a statement by Hurley.

However, House Bills 672 and 673 do address the transportation of hazardous waste.

Hurley said currently there is no comprehensive list available for people to identify the use or storage of chemicals.

"When hazardous substances are involved, ignorance is not bliss," Hurley said. "Unless the names and hazardous properties of chemicals in a community is publically available, government officials charged with protecting property and public health are left virtually blindfolded waiting for a crisis to occur.

"The actual cost of ignorance can actually be much higher than the price of implementing the community right-to-know bill."

But cost is exactly what it may come down to, according to Kevin Koechlin, head of emergency services for the Mat-Su Borough.

"The concept is very good, the responders should be able to know what they're dealing with," he said. "What I'm not sure of is what the actual cost will be to local governments, I'm not sure anybody is."

Koechlin said currently federal law mandates that certain quantities of hazardous chemicals have to be labeled or placarded. He said, for instance, a placard reading "1203" on a truck transporting gasoline indicates there is flammable liquid within.

But, like the Moose Pass incident, workers would have to look at the shipping papers, or if the material was being transported by rail, the conductor's papers, to find what the chemical was.

Koechlin said the problem comes in when the name is found, but it's a trade name whose contents are not immediately recognizable, and which must be identified by the manufacturer. He said brands of fertilizer are notorious for that.

"That's where some of the problem is," he said "It can take time to track down the manufacturer or generator of the stuff. It (the information) is available, but it just takes a while."

Hurley's bill would require the controller of hazardous material to annually submit an inventory of the materials stating how hazardous it is, maximum quantity, general location and method of disposal to local governments as well as the state Department of Public Safety and the federal Occupational Safety and Health and Administration.

The governments would also have to be notified if the material was going to be moved within 24 hours, or added to within 30 days.

In addition, the affected agency could inspect the site and fine the company if they did not comply with reporting and placarding requirements.

Koechlin said there have been some minor spills in the Mat-Su Borough, but not one that has been a major problem. What if there were?

"We basically would be in same position as the people at Moose Pass, we would have to stand back and look at it."

Koechlin said if there was a major spill, the Valley poses some particular problems for emergency services. In the case of escaping poisonous gas, "We'd figure out where the cloud is going and then move in the opposite direction. That is, assuming we can move—we have a road problem out here."

The lack of population, though, would help since hazardous waste in the borough would not be impacting millions of people.

Koechlin said compared with some spills Outside, the one at Moose Pass was pretty minor, although not to the people living there. It, however, was minor because of the few number of people it affected.

3/16/86

Kodiak clear of chlorine

Daily News

Leaking tank towed to sea

The Associated Press

KODIAK — A four-block industrial area on Kodiak's waterfront was reopened to the public Saturday after a leaking chlorine tank was put on a barge and towed out to sea.

Kodiak policeman Michael Andre said a copper tube was inserted into the tank to allow the chlorine to escape into the water where it would dissipate. He said the tank would be left offshore until the chlorine was gone.

No injuries were reported and the evacuation Friday afternoon was a precautionary measure while officials tried to pump the poisonous chlorine from the leaking tank to a sound one, said Sgt. Tom Culbertson.

When that was unsuccessful, the barge was taken about 2½ miles offshore where it wouldn't pose a threat, said Lon White of the harbormaster's office. The Coast Guard established a safety zone with a 1-mile radius around the barge and ordered all vessels to stay out of the area, he said.

The pressurized liquid chlorine, used as a refrigerant, was on a dock next to the Kodiak King Crab Cannery.

The tank was damaged Thursday and started to leak, Culbertson said. The immediate area around the tank was cleared of people Thursday, and police evacuated the larger area starting around 3:30 p.m. Friday, Culbertson said.

No homes were evacuated. The area has mostly industrial and commercial establishments, he said.

Anchorage Daily News Tuesday, March 11, 1986

Study finds skills lacking for response to toxic spills

By LINDA WERFELMAN
United Press International

WASHINGTON — Many police and firefighters do not know how to handle accidents involving transportation of hazardous materials, and the nation lacks standards to teach them, congressional researchers said Monday.

A report by the congressional Office of Technology Assessment said finding an effective way to train police, generally the first to arrive at an accident scene, is "the most pressing national need in emergency response."

Training efforts are uneven, the report said, with local authorities in major metropolitan areas often well equipped to handle accidents.

"However, most first responders in smaller urban or rural areas have not been trained to deal with hazardous materials, despite many existing training programs," the researchers said in a summary of their findings.

"Moreover, no national standards for training programs are currently in place, leading to the independent development of different training programs, some of which are inadequate," they added. "National guidelines or training standards are needed to ensure adequate training."

In many cases, local governments need financial assistance for enforcement and emergency response training and planning, the report said. It suggested the states or federal government pay, or that cooperative programs with industry or user fees might provide the funding.

Safety information included with between one-quarter and one-half of the shipments is incorrect, the report said, and shipping papers are sometimes incomplete or unavailable.

"Emergency crews must assess the risks of the hazardous material and make decisions on how to respond based on information that may or may not be accurate," the researchers said.

Informational placards should clearly state the nature of the hazardous material, they said, and how to respond in case of an accident.

The study found gasoline and petroleum products — t most frequently transport hazardous materials — a involved in the most ac dents. They also account f more injuries and more da age than othe hazardous su stances.

ır the CARGO AIRCRAFT ONLY
el as described in § 172.448.
2) Column 8(b) specifies the maxi-
m net quantity permitted in one
kage for transportation by cargo-
y aircraft. When offered for trans-
tation by aircraft, a package must
ır the CARGO AIRCRAFT ONLY
el when the quantity of hazardous
terial in one package exceeds that
horized on passenger-carrying air-
ft, or is forbidden on passenger-car-
ng aircraft.
) Column 7 specifies each of the
horized locations on board cargo
sels and passenger vessels and cer-
n additional requirements for ship-
nts of each listed hazardous materi-
Section 176.63 of this subchapter
s forth the physical requirements
each of the authorized locations
ed in column 7. (For bulk ship-
nts by vessel see 46 CFR Parts 30 to
70, 98, 148, 151, 153, and 154.)
1) "1" means the material may be
wed "on deck" subject to the re-
rements of § 176.63(b) of this sub-
pter. When both "on deck" and
nder deck" are authorized, "under
k" should be used if available.
2) "2" means the material may be
wed "under deck" in a compart-
nt or hold subject to the require-
nts of § 176.63(c). When both "on
k" and "under deck" are author-
d, "under deck" should be used if it
vailable.
3) "3" means the material may be
wed "under deck away from heat"
in a ventilated compartment or hold subject to the requirements of § 176.63(d) of this subchapter.

(4) "4" means the material is authorized to be transported in only the limited quantities specified in the CFR section listed in column 5 and is subject to the stowage requirements specified for a cargo vessel for the same material.

(5) "5" means the material is forbidden and may not be offered or accepted for transportation.

(6) "6" means the material is authorized to be transported in a magazine subject to the requirements of §§ 176.135 through 176.144 of this subchapter.

(j) Unless specifically stated otherwise in the amendement or the "Effective date" entry in its preamble, if any entry in this Table is changed by an amendment to this subchapter—

(1) Such a change does not apply to the shipment of any package filled prior to the effective date of the amendment; and

(2) Stocks of preprinted shipping papers and package markings may be continued in use, in the manner previously authorized, until depleted or for a one year period, whichever is less.

(k) Except for hazardous substances and hazardous wastes, Amendment No. 172-68, to the extent that it requires a change in the shipping name or class of a material, applies after June 30, 1981.

§ 172.101 Hazardous Materials Table

(1) +/E/A/W	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(3A) Identification numbers	Labels required (if not excepted) (4)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(8) Other requirements
	Accumulator, pressurized (pneumatic or hydraulic), containing nonflammable gas	Nonflammable gas	NA1956	Nonflammable gas	173.306		No limit	No limit	1,2	1,2	
E	Acetal	Flammable liquid	UN1088	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
E	Acetaldehyde (ethyl aldehyde) (RQ-1000/454)	Flammable liquid	UN1089	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	
EA	Acetaldehyde ammonia (RQ-1000/454)	ORM-A	UN1841	None	173.505	173.510	No limit	No limit	1,2	1,2	Stow separate from acids or oxidizing materials
E	Acetic acid (aqueous solution) (RQ-1000/454)	Corrosive material	UN2790	Corrosive	173.244	173.245	1 quart	10 gallons	1,3	1,3	Stow separate from acids or oxidizing materials. Segregation same as for flammable liquids
E	Acetic acid, glacial (RQ-1000/454)	Corrosive material	UN2789	Corrosive	173.244	173.245	1 quart	10 gallons	1,3	1,3	
E	Acetic anhydride (RQ-1000/454)	Corrosive material	UN1715	Corrosive	173.244	173.245	1 quart	1 gallon	1,3	1,3	
	Acetone	Flammable liquid	UN1090	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
E	Acetone cyanohydrin (RQ-10/4.54)	Poison B	UN1541	Poison	None	173.346	Forbidden	55 gallons	1	5	Shade from radiant heat. Stow away from corrosive materials
	Acetone oil	Flammable liquid	UN1091	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	1	
	Acetonitrile	Flammable liquid	NA1648	Flammable liquid	173.118	173.119	1 quart	10 gallons	1	4	Shade from radiant heat
	Acetyl acetone peroxide, in solution with not more than 9% by weight active oxygen. See Organic peroxide, liquid or solution, n.o.s.	-	UN2080								
	Acetyl acetone peroxide with more than 9% by weight active oxygen	Forbidden									
	Acetyl benzoyl peroxide, not more than 40% in solution. See Acetyl benzoyl peroxide solution, not over 40% peroxide		UN2081								
	Acetyl benzoyl peroxide, solid, or more than 40% in solution	Forbidden									
	Acetyl benzoyl peroxide solution, not over 40% peroxide	Organic peroxide	UN2081	Organic peroxide	None	173.222	Forbidden	1 quart	1,2	1	
E	Acetyl bromide (RQ-5000/2270)	Corrosive material	UN1716	Corrosive	173.244	173.247	1 quart	1 gallon	1	1	Keep dry. Glass carboys not permitted on passenger vessels
E	Acetyl chloride (RQ-5000/2270)	Flammable liquid	UN1717	Flammable liquid	173.244	173.247	1 quart	1 gallon	1	1	Stow away from alcohols. Keep coal and dry. Separate longitudinally by an intervening complete compartment or hold from oxidizing

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(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
+/ D/ A/ W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Special requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Acetyl cyclohexanesulfonyl peroxide, more than 82%, wetted with less than 12% water	Forbidden									
	Acetyl cyclohexanesulphonyl peroxide, *not more than 82%, wetted with not less than 12% water. See* Organic peroxide, solid, n.o.s.		UN2082								
	Acetyl cyclohexanesulphonyl peroxide, *not more than 32% in solution. See* Organic peroxide, liquid *or solution*, n.o.s.		UN2083								
	Acetylene	Flammable gas	UN1001	Flammable gas	None	173.303	Forbidden	300 pounds	1	1	Shade from radiant heat
	Acetylene (liquid)	Forbidden									
	Acetylene silver nitrate	Forbidden									
A	Acetylene tetrabromide	ORM-A	UN2504	None	173.505	173.510	10 gallons	55 gallons			
	Acetyl iodide	Corrosive material	UN1898	Corrosive	173.244	173.247	1 quart	1 gallon	1	1	Keep dry. Glass carboys not permitted on passenger vessels
	Acetyl peroxide, *not more than 25% in solution. See* Acetyl peroxide solution, *not over 25% peroxide*		UN2064								
	Acetyl peroxide, solid, or more than 25% in solution	Forbidden									
	Acetyl peroxide solution, *not over 25% peroxide*	Organic peroxide	UN2064	Organic peroxide	173.153	173.222	Forbidden	1 quart	1,2	1	
	Acid butyl phosphate	Corrosive material	UN1718	Corrosive	173.244	173.245	1 quart	5 gallons	1,2	1,2	Glass carboys in hampers not permitted under deck
	Acid carboy, empty. *See* Carboy, empty										
	Acid, liquid, n.o.s.	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	5 pints	1	4	Keep cool
	Acid, sludge	Corrosive material	UN1906	Corrosive	None	173.248	Forbidden	1 quart	1,2	1	
+ E	Acrolein, inhibited (*RQ-1/.454*)	Flammable liquid	UN1092	Flammable liquid and Poison	None	173.122	Forbidden	1 quart	1,2	5	Keep cool. Stow away from living quarters
	Acrylic acid	Corrosive material	UN2218	Corrosive	173.244	173.245	1 quart	5 pints	1	1	
E	Acrylonitrile (*RQ-100/45.4*)	Flammable liquid	UN1093	Flammable liquid and Poison	None	173.119	Forbidden	1 quart	1,2	5	Keep cool
	Actuating cartridge, explosive/fire extinguisher, or valve)	Class C explosive		Explosive C	173.114		50 pounds	150 pounds	1,2	1,2	Keep cool and dry
	Adhesives, n.o.s. *See* Cement, liquid, n.o.s.										
	Aerosol products. See Compressed gas, n.o.s.										
	Air, compressed	Nonflammable gas	UN1002	Nonflammable gas	173.306	173.302	150 pounds	300 pounds	1,2	1,2	
	Air conditioning machine. *See* Refrigerating machine										
	Aircraft rocket engine (*Commercial*)	Flammable solid	NA2791	Flammable solid	None	173.238	Forbidden	550 pounds	1,2	5	
	Aircraft rocket engine igniter (*Commercial*)	Flammable solid	UN2792	Flammable solid	None	173.238	Forbidden	25 pounds	1,3	5	
	Airplane flare. See Fireworks, special										
	Alcoholic beverage	Flammable liquid	UN1170	Flammable liquid	173.118	173.125	See 173.118(2)	10 gallons	1,2	1	
	Alcoholic beverage	Combustible liquid	UN1170	None	173.118a	None	No limit	No limit	1,2	1,2	
	Alcohol, n.o.s.	Flammable liquid	UN1987	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
	Alcohol, n.o.s.	Combustible liquid	UN1987	None	173.118a	None	No limit	No limit	1,2	1,2	
E	Aldrin (*RQ-1/0.454*)	Poison B	NA2761	Poison	173.364	173.376	50 pounds	200 pounds	1,2	1,2	
EA	Aldrin, cast solid (*RQ-1/0.454*)	ORM-A	NA2761	None	173.505	173.510	No limit	No limit	1,2	1,2	
E	Aldrin mixture, dry (*with more than 65% aldrin*) (*RQ-1/0.454*)	Poison B	NA2761	Poison	173.364	173.376	50 pounds	200 pounds	1,2	1,2	
EA	Aldrin mixture, dry, with 65% or less aldrin (*RQ-1/0.454*)	ORM-A	NA2761	None	173.505	173.510	No limit	No limit	1,2	1,2	
E	Aldrin mixture, liquid (*with more than 60% aldrin*) (*RQ-1/0.454*)	Poison B	NA2762	Poison	173.345	173.361	1 quart	55 gallons	1,2	1,2	If flash point less than 141 deg F, segregation same as for flammable liquids
EA	Aldrin mixture, liquid, with 60% or less aldrin (*RQ-1/0.454*)	ORM-A	NA2762	None	173.505	173.510	No limit	No limit	1,2	1,2	
	Alkaline (*corrosive*) liquid, n.o.s.	Corrosive material	NA1719	Corrosive	173.244	173.249	1 quart	5 gallons	1,2	1,2	
	Alkanesulfonic acid	Corrosive material	UN2584	Corrosive	173.244	173.245	5 pints	1 gallon	1,2	1	
	Alkyl aluminum halides. See Pyrophoric liquid, n.o.s.										
A	Allethrin	ORM-A	NA2902	None	173.505	173.510	No limit	No limit			
E	Allyl alcohol (*RQ-100/45.4*)	Flammable liquid	UN1098	Flammable liquid and Poison	None	173.119	1 quart	10 gallons	1,2	1	
	Allyl bromide	Flammable liquid	UN1099	Flammable liquid	173.118	173.119	Forbidden	10 gallons	1,3	1	
E	Allyl chloride (*RQ-1000/454*)	Flammable liquid	UN1100	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	
	Allyl chlorocarbonate	Flammable liquid	UN1722	Flammable liquid	None	173.288	Forbidden	5 pints	1	5	Keep dry. Separate longitudinally by an intervening complete hold or compartment from explosives. Segregation same as for corrosive materials
	Allyl chloroformate. *See* Allyl chlorocarbonate										
	Allyl trichlorosilane	Corrosive material	UN1724	Corrosive	None	173.240	Forbidden	10 gallons	1	1	Keep dry
	Aluminum alkyl. *See* Pyrophoric liquid, n.o.s.										
	Aluminum bromide, anhydrous	Corrosive material	UN1725	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry
	Aluminum dross, wet or hot. See 173.173	Forbidden									

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
←/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Aluminum hydride	Flammable solid	UN2463	Flammable solid and Dangerous when wet	None	173.208	Forbidden	25 pounds	1.2	5	Segregation same as for flammable solid labeled Dangerous When Wet
	Aluminum, liquid. See Paint, Enamel, Lacquer, Stain, Shellac, Varnish, etc.										
	Aluminum, metallic, powder	Flammable solid	UN1396	Flammable solid	173.232	173.232	25 pounds	100 pounds	1.2	1.2	Keep dry. Segregation same as for flammable solids labeled dangerous when wet
	Aluminum nitrate	Oxidizer	UN1438	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Aluminum phosphate solution	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	Aluminum phosphide	Flammable solid	UN1397	Flammable solid and Dangerous when wet	None	173.154	Forbidden	25 pounds	1.2	1.2	Stow away from acids and oxidizing materials
E	Aluminum sulfate, solid (*RQ-5000/2270*)	ORM-E	NA9078	None	None	173.510	No limit	No limit	1.2	1.2	
EA	Aluminum sulfate solution (*RQ-5000/2270*)	ORM-B	NA1760	None	173.505	173.510	25 pounds	100 pounds	1.2	1.2	
	Amatol. See High explosive										
	2-(2-Aminoethoxy) ethanol	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	N-Aminoethylpiperazine	Corrosive material	UN2815	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	Ammopropyldiethanolamine	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	N-Aminopropylmorpholine	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	bis (Aminopropyl) piperazine	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
E	Ammonia, anhydrous (*RQ-100/45.4*)	Nonflammable gas	UN1005	Nonflammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1.2	4	Stow in well ventilated space
E	Ammonia solution (*containing more than 44% ammonia*) (*RQ-1000/454*)	Nonflammable gas	UN2073	Nonflammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1.2	4	Stow in well ventilated space
	Ammonia solution (containing 44% or less ammonia in water). See Ammonium hydroxide										
E	Ammonium acetate (*RQ-5000/2270*)	ORM-E	NA9079	None	None	173.510	No limit	No limit	1.2	1.2	
	Ammonium arsenate, solid	Poison B	UN1546	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	Stow away from alkaline corrosives
	Ammonium azide	Forbidden									
E	Ammonium benzoate (*RQ-5000/2270*)	ORM-E	NA9080	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium bicarbonate (*RQ-5000/2270*)	ORM-E	NA9081	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium bifluoride, solid *or* solution. *See* Ammonium hydrogen fluoride, solid *or* solution										
EA	Ammonium bisulfite, solid (*RQ-5000/2270*)	ORM-B	NA2693	None	173.505	173.510	25 pounds	100 pounds	1.2	1.2	
E	Ammonium bisulfite solution (*RQ-5000/2270*)	Corrosive material	NA2693	Corrosive	173.244	173.245	1 quart	5 gallons	1.2	1.2	
	Ammonium bromate	Forbidden									
EA	Ammonium carbamate (*RQ-5000/2270*)	ORM-A	NA9083	None	173.505	173.510	50 pounds	No limit	1.2	1.2	Keep away from heat.
EA	Ammonium carbonate (*RQ-5000/2270*)	ORM-A	NA9084	None	173.505	173.510	50 pounds	No limit	1.2	1.2	Keep away from heat, acids, alum and salts of iron or zinc.
	Ammonium chlorate	Forbidden									
E	Ammonium chloride (*RQ-5000/2270*)	ORM-E	NA9085	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium chromate (*RQ-1000/454*)	ORM-E	NA9066	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium citrate, dibasic (*RQ-5000/2270*)	ORM-E	NA9087	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium dichromate (*ammonium bichromate*) (*RQ-1000/454*)	Oxidizer	UN1439	Oxidizer	173.154	173.154 173.235	25 pounds	100 pounds	1.2	1.2	
EA	Ammonium fluoborate (*RQ-5000/2270*)	ORM-B	NA9088	None	None	173.510	25 pounds	100 pounds	1.2	1.2	
EA	Ammonium fluoride (*RQ-5000/2270*)	ORM-B	UN2505	None	173.505	173.800	25 pounds	100 pounds	1.2	1.2	
	Ammonium fulminate	Forbidden									
E	Ammonium hydrogen fluoride, solid (*RQ-5000/2270*)	Corrosive material	UN1727	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry
E	Ammonium hydrogen fluoride solution (*RQ-5000/2270*)	Corrosive material	UN2817	Corrosive	173.244	173.245	1 quart	5 gallons	1.2	1.2	Keep dry
A	Ammonium hydrogen sulfate	ORM-B	UN2506	None	173.505	173.800	25 pounds	100 pounds			
A	Ammonium hydrosulfide solution	ORM-A	NA2683	None	173.505	173.605	10 gallons	55 gallons			
E	Ammonium hydroxide (*containing not less than 12% but not more than 44% ammonia*) (*RQ-1000/454*)	Corrosive material	NA2672	Corrosive	173.244	173.245	2 gallons	2 gallons	1	4	
EAW	Ammonium hydroxide (*containing less than 12% ammonia*)(*RQ-5000/2270*)	ORM-A	NA2672	None	173.505	173.510	10gallons	55 gallons	1	1	
	Ammonium nitrate-carbonate mixture	Oxidizer	UN2068	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate fertilizer, *containing no more than 0.2% carbon*	Oxidizer	UN2067	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate - fuel oil mixture. See High explosive										
	Ammonium nitrate-fuel oil mixture (*containing only prilled ammonium nitrate and fuel oil*)	Blasting agent		Blasting agent	None	173.114a	Forbidden	100pounds	1.2	1.2	
	Ammonium nitrate mixed fertilizer	Oxidizer	UN2069	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate (no organic coating)	Oxidizer	UN1942	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate (organic coating)	Oxidizer	NA1942	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate-phosphate	Oxidizer	UN2070	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
	Ammonium nitrate, solution (*containing not less than 15% water*). *See 173.154(a)(17) and 173.154(a)(18)*	Oxidizer	UN2426	Oxidizer							
	Ammonium nitrite	Forbidden									
E	Ammonium oxalate (*RQ-5000/2270*)	ORM-A	NA2448	None	173.505	173.510	50 pounds	200 pounds	1.2	1.2	
	Ammonium perchlorate	Oxidizer	UN1442	Oxidizer	173.153	173.239a	25 pounds	100 pounds	1.2	4	Stow away from powdered metals
	Ammonium perchlorate. *See* High explosive										
	Ammonium permanganate	Oxidizer	NA9190	Oxidizer	None	173.154	Forbidden	Forbidden	1.2	1.2	Separate from ammonium compounds and hydrogen peroxide. This material may be forbidden in water transportation by certain countries
	Ammonium picrate, dry. See High explosive										

(1) +/E/A/W	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(3A) Identification numbers	(4) Labels required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger-carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(c) Other requirements
	Ammonium picrate, wet (with 10% or more water)	Flammable solid	UN1310	Flammable solid	173.192		1 pound	1 pound	1	4	Stow away from heavy metals and their compounds
	Ammonium picrate, wet with 10% or more water, over 16 ounces in one outside packaging. See High explosive										
A	Ammonium polysulfide solution	ORM-A	UN2818	None	173.505	173.605	10 gallons	55 gallons			
EA	Ammonium silicofluoride (*RQ-1000/454*)	ORM-B	UN2854	None	173.505	173.510	25 pounds	100 pounds	1.2	1.2	
E	Ammonium sulfamate (*RQ-5000/2270*)	ORM-E	NA9099	None	None	173.510	No limit	No limit	1.2	1.2	
W	Ammonium sulfide nitrate	ORM-C	NA1477	None	173.505	173.510			1.2	1.2	Must not be accepted for transportation while hot. Separate by an intervening hold or compartment from Class A explosives. Separate from other explosives, corrosive materials, flammable solids, liquids, or gases, oxidizing materials, organic peroxides, or organic materials
E	Ammonium sulfide solution (*RQ-5000/2270*)	Flammable liquid	UN2683	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1.2	
E	Ammonium sulfite (*RQ-5000/2270*)	ORM-E	NA9090	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium tartrate (*RQ-5000/2270*)	ORM-E	NA9091	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium thiocyanate (*RQ-5000/2270*)	ORM-E	NA9092	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ammonium thiosulfate (*RQ-5000/2270*)	ORM-E	NA9093	None	None	173.510	No limit	No limit	1.2	1.2	
	Ammunition, chemical (containing a Poison A liquid or gas). See Chemical ammunition, nonexplosive (*containing a Poison A material*)										
	Ammunition, chemical (containing a Poison B material). See Chemical ammunition, nonexplosive (*containing a Poison B material*)										
	Ammunition, chemical (containing an irritating liquid or solid). See Chemical ammunition, nonexplosive (*containing an irritating material*)										
	Ammunition, chemical, explosive, with Poison A material	Class A explosive		Explosive A and Poison gas	None	173.58	Forbidden	Forbidden	6	5	No other cargo may be stowed in the same hold with these items
	Ammunition, chemical, explosive, with Poison B material	Class A explosive		Explosive A and Poison	None	173.58	Forbidden	Forbidden	6	5	No other cargo may be stowed in the same hold with these items
	Ammunition, chemical, explosive, with irritant	Class A explosive		Explosive A and Irritant	None	173.58	Forbidden	Forbidden	6	5	No other cargo may be stowed in the same hold with these items
	Ammunition for cannon with empty projectile	Class B explosive		Explosive B	None	173.88	Forbidden	Forbidden	1.2	5	
	Ammunition for cannon with explosive projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with gas projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with illuminating projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with incendiary projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with inert loaded projectile	Class B explosive		Explosive B	None	173.89	Forbidden	Forbidden	1.2	5	
	Ammunition for cannon without projectile	Class B explosive		Explosive B	None	173.89	Forbidden	Forbidden	1.2		5
	Ammunition for cannon with smoke projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with solid projectile	Class B explosive		Explosive B	None	173.89	Forbidden	Forbidden	1.2	5	
	Ammunition for cannon with tear gas projectile	Class A explosive		Explosive A	None	173.54	Forbidden	Forbidden	6	5	
	Ammunition for cannon with tear gas projectile	Class B explosive		Explosive B	None	173.89	Forbidden	Forbidden	1.2	5	
	Ammunition for small-arms with explosive projectile	Class A explosive		Explosive A	None	173.58	Forbidden	Forbidden	6	5	
	Ammunition for small-arms with incendiary projectile	Class A explosive		Explosive A	None	173.58	Forbidden	Forbidden	6	5	
	Ammunition, non-explosive. See 173.55										
	Ammunition, rocket: See Rocket ammunition with ...										
	Ammunition, small-arms. *See* Small-arms ammunition										
E	Amyl acetate (*RQ-1000/454*)	Flammable liquid	UN1104	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1.2	
	Amyl acid phosphate	Corrosive material	UN2819	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	Amylamine	Flammable liquid	UN1106	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Amyl chloride	Flammable liquid	UN1107	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Amylene, *normal*	Flammable liquid	UN1108	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.3	1.3	
	Amyl formate	Flammable liquid	UN1109	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Amyl mercaptan	Flammable liquid	UN1111	Flammable liquid	None	173.141	Forbidden	10 gallons	1.2	1	
	Amyl nitrite	Flammable liquid	UN1113	Flammable liquid	173.118	173.119	1 quart	10gallons	1.3	4	
	tert-Amyl peroxy-2-ethylhexanoate, *technically pure. See* Organic peroxide, liquid or solution, n.o.s.		UN2898								
	tert-Amyl peroxyneodecanoate, *not more than 75% with phlegmatizer. See* Organic peroxide, liquid or solution, n.o.s.		UN2891								
	Amyl trichlorosilane	Corrosive material	UN1728	Corrosive	None	173.260	Forbidden	10 gallons	1	5	Keep dry
E	Anhydrous ammonia. *See* Ammonia, anhydrous										

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
—/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Anhydrous hydrazine. *See* Hydrazine, anhydrous										
E	Anhydrous hydrofluoric acid. *See* Hydrogen fluoride										
	Aniline oil drum, empty *See 173.347(d)*	Poison B							1.2	1	Do not accept unless returnable package notice is on drum and the instructions thereon have been carried out
+ E	Aniline oil, liquid (*RQ-1000/454*)	Poison B	UN1547	Poison	None	173.347	Forbidden	55 gallons	1.2	1.2	Store away from oxidizing materials and acids
E	Anisoyl chloride	Corrosive material	UN1729	Corrosive	173.244	173.245	1 quart	1 quart	1	1	Keep dry
	Antifreeze compound, liquid	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Antifreeze compound, liquid	Combustible liquid	NA1142	None	173.116a	None	No limit	No limit	1.2	1.2	
	Antifreeze preparation, liquid	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Antifreeze preparation, liquid	Combustible liquid	NA1142	None	173.116a	None	No limit	No limit	1.2	1.2	
E	Antimonous chloride. *See* Antimony trichloride										
A	Antimony lactate, solid	ORM-A	UN1550	None	173.505	173.510	No limit	No limit			
E	Antimony pentachloride (*RQ-1000/454*)	Corrosive material	UN1730	Corrosive	None	173.245	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels
E	Antimony pentachloride solution (*RQ-1000/454*)	Corrosive material	UN1731	Corrosive	173.244	173.245	1 quart	5 pints	1	1	Keep dry. Glass carboys not permitted on passenger vessels
	Antimony pentafluoride	Corrosive material	UN1732	Corrosive	None	173.246	Forbidden	25 pounds	1	5	Keep dry
EA	Antimony potassium tartrate, solid (*RQ-1000/454*)	ORM-A	UN1551	None	173.505	173.510	No limit	No limit	1.2	1.2	
	Antimony sulfide and a chlorate, mixtures of	Forbidden									
A	Antimony sulfide, solid	ORM-A	NA1325	None	173.505	173.510	No limit	No limit			
E	Antimony tribromide, solid (*RQ-1000/454*)	Corrosive material	NA1549	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry
E	Antimony tribromide solution (*RQ-1000/454*)	Corrosive material	NA1549	Corrosive	173.244	173.245	1 quart	5 pints	1	1	Keep dry
E	Antimony trichloride, solid (*RQ-1000/454*)	Corrosive material	UN1733	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry
E	Antimony trichloride solution (*RQ-1000/454*)	Corrosive material	UN1733	Corrosive	173.244	173.245	1 quart	5 pints	1	1	Keep dry
E	Antimony trifluoride, solid (*RQ-1000/454*)	Corrosive material	NA1549	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry

E	Antimony trifluoride (*RQ-5000/2270*)	ORM-E	NA1549	None	None	173.510	No limit	No limit	1.2	1.2	
E	Aqua ammonia solution (*containing 44% or less ammonia*). *See* Ammonium hydroxide										
	Argon	Nonflammable gas	UN1006	Nonflammable gas	173.306	173.302 173.314	150 pounds	300 pounds	1.2	1.2	
	Argon, liquid pressurized	Nonflammable gas	UN1951	Nonflammable gas	None	173.304	Forbidden	300 pounds	1.2	1.2	
	Arsenic acid, solid	Poison B	UN1554	Poison	173.364	173.366	50 pounds	200 pounds	1.2	1.2	
	Arsenic acid solution	Poison B	UN1553	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Arsenical compound, liquid, n.o.s., or Arsenical mixture, liquid, n.o.s.	Poison B	UN1556	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Arsenical compound, solid, n.o.s., or Arsenical mixture, solid, n.o.s.	Poison B	UN1557	Poison	173.364	173.367	50 pounds	200 pounds	1.2	1.2	Keep dry
	Arsenical dip, liquid (*sheep dip*)	Poison B	NA1557	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Arsenical dust	Poison B	UN1562	Poison	173.364	173.366	50 pounds	200 pounds	1.2	1.2	
	Arsenical pesticide, liquid, n.o.s. (*compounds and preparations*)	Flammable liquid	UN2760	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Arsenical pesticide, liquid, n.o.s. (*compounds and preparations*)	Poison B	UN2759	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Arsenical pesticide, solid n.o.s. (*compounds and preparations*)	Poison B	UN2759	Poison	173.364	173.367	50 pounds	200 pounds	1.2	1.2	
	Arsenic bromide, solid	Poison B	UN1555	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
E	Arsenic chloride, liquid. *See* Arsenic trichloride										
E	Arsenic disulfide. *See* Arsenic sulfide, solid										
	Arsenic iodide, solid	Poison B	NA1557	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
E	Arsenic pentoxide, solid (*RQ-5000/2270*)	Poison B	UN1559	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
	Arsenic, solid	Poison B	UN1558	Poison	173.364	173.366	50 pounds	200 pounds	1.2	1.2	
	Arsenic sulfide and a chlorate, mixtures of	Forbidden									
E	Arsenic sulfide, solid (*RQ-5000/2270*)	Poison B	NA1557	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	Keep dry
E	Arsenic trichloride, liquid (*RQ-5000/2270*)	Poison B	UN1560	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
E	Arsenic trioxide, solid (*RQ-5000/2270*)	Poison B	UN1561	Poison	173.364	173.366 173.368	50 pounds	200 pounds	1.2	1.2	
E	Arsenic trisulfide (*RQ-5000/2270*)	Poison B	NA1557	Poison	173.364	173.365	50 pounds	200 pounds	1.2	2	
E	Arsenic, white, solid. *See* Arsenic trioxide, solid										
E	Arsenious acid, solid. *See* Arsenic trioxide, solid										
	Arsenious and mercuric iodide solution	Poison B	NA2810	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Arsine	Poison A	UN2188	Poison gas and Flammable gas	None	173.328	Forbidden	Forbidden	1	5	Segregation same as for flammable gases
	Asbestos	ORM-C		None	173.1090	173.1090	No limit	No limit	1.2	1.2	Store and handle to avoid airborne particles.
	Ascaridole (organic peroxide)	Forbidden									
W	Asphalt, at or above its flashpoint	ORM-C	NA1999	None	None	None	Forbidden	Forbidden	1	5	When applicable, no fire or residue thereof may be present in the furnace heating the substance while the vehicle is on board a cargo vessel
	Asphalt, cut back	Flammable liquid	NA1999	Flammable liquid	173.118	173.131	1 quart	10 gallons	1.2	1	
	Asphalt, cut back	Combustible liquid	NA1999	None	173.116a	None	No limit	No limit	1.2	1.2	
	Automobile, motorcycle, tractor, or other self-propelled vehicle. See Motor vehicle										

§ 172.101 Hazardous Materials Table—Continued

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or rail car	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Automobile, motorcycle, tractor, or other self-propelled vehicle, engine, or other mechanical apparatus, with charged electric storage battery, wet. See Motor vehicle										
	Azidoacetic acid (salt of), (dry)	Forbidden									
	3-Azido-1,2-Propylene glycol dinitrate	Forbidden									
	3-Azido-1-hydroxy ferrocene	Forbidden									
	Azidodithiocarbonic acid	Forbidden									
	Azidoethyl nitrate	Forbidden									
	Azido guanidine picrate (dry)	Forbidden									
	Azido hydroxy ferrazole (mercury and silver salts)	Forbidden									
E	Azinphos methyl (*RQ-1/0.454*)	Poison B	NA2783	Poison	173.364	173.365	50 pounds	200 pounds	1,2	4	
E	Azinphos methyl mixture, liquid (*RQ-1/0.454*)	Poison B	NA2783	Poison	173.345	173.346	½ pint	1 quart	1,2	5	
	1-Aziridinyl phosphine oxide (tris). *See* Tris-(1-aziridinyl) phosphine oxide										
	Azitetrazole (dry)	Forbidden									
	Bags, burlap, used, must be closed for the hazardous material previously contained in bag. See 173.28, 173.29										
	Bags, sodium nitrate, empty and unwashed	Flammable solid	UN1359	Flammable solid	None	173.155	Forbidden	25 pounds	1,2	1,2	Separate from flammable gases or liquids, oxidizing materials or organic peroxides
	Barium azide, wet, *30% or more water*	Flammable solid	UN1571	Flammable solid	None	173.239	Forbidden	1 pound	1,2	1,2	Stow away from heavy metals
	Barium chlorate	Oxidizer	UN1445	Oxidizer	173.153	173.163	25 pounds	100 pounds	1,2	1,2	Separate from ammonium compounds. Stow away from powdered metals
	Barium chlorate, wet	Oxidizer	NA1445	Oxidizer	173.153	173.163	25 pounds	200 pounds	1,2	1,2	Separate from ammonium compounds. Stow away from powdered metals
E	Barium cyanide, solid (*RQ-10/4.54*)	Poison B	UN1565	Poison	173.370	173.370	25 pounds	200 pounds	1,2	1,2	Stow away from acids
	Barium nitrate	Oxidizer	UN1446	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	
A	Barium oxide	ORM-B	UN1884	None	173.505	173.800	25 pounds	100 pounds			
	Barium perchlorate	Oxidizer	UN1447	Oxidizer	173.153	173.154	25 pounds	100 pounds	1,2	1,2	Stow away from powdered metals
	Barium permanganate	Oxidizer	UN1448	Oxidizer	173.153	173.154	25 pounds	100 pounds	1,2	1,2	Separate from ammonium compounds and hydrogen peroxide
	Barium peroxide	Oxidizer	UN1449	Oxidizer	173.153	173.156	25 pounds	100 pounds	1,2	1,2	Keep dry
	Barrel, empty. See Drum, empty										
	Battery, dry. Not subject to Parts 170-189 of this subchapter										

	Battery, *electric storage, dry (containing potassium hydroxide, dry solid, flake bead, or granular)*	Corrosive material	NA1813	Corrosive	173.244	173.245a	25 pounds	100 pounds	1,2	1,2	Keep dry
	Battery, *electric storage*, wet, filled with acid	Corrosive material	UN2794	Corrosive	173.260	173.260	Forbidden	No limit	1,2	1,2	
	Battery, *electric storage*, wet, *filled with acid*, with automobile (*or specifically named self-propelled vehicle or mechanical apparatus*)	Corrosive material	NA2794	Corrosive	173.260	173.260	No limit	No limit	1,2	1,2	Keep dry
	Battery, *electric storage*, wet, *filled with* alkali, with automobile (*or specifically named self-propelled vehicle or mechanical apparatus*)	Corrosive	NA2797	Corrosive	173.260	173.260	No limit	No limit	1,2	1,2	Keep dry
	Battery, *electric storage*, wet, with wheelchair	Corrosive material		Corrosive	173.260	173.260 175.305	No limit	No limit	1,2	1,2	Keep dry
	Battery, electric storage, wet, nonspillable. See § 173.260(d)										
	Battery, *electric storage*, wet, filled with alkali	Corrosive material	UN2795	Corrosive	173.260	173.260	Forbidden	No limit	1,2	1,2	
	Battery fluid, acid	Corrosive material	UN2796	Corrosive	173.244	173.257	1 quart	5 gallons	1,2	1,2	
	Battery fluid, acid, with electronic equipment or actuating device	Corrosive material	NA2796	Corrosive	None	173.259	Forbidden	5 pints	1,2	1,2	
	Battery fluid, acid, with battery, *electric storage, wet, empty, or dry*	Corrosive material	NA2796	Corrosive	None	173.258	Forbidden	5 pints	1,2	1,2	
	Battery fluid, alkali	Corrosive material	UN2797	Corrosive	173.244	173.257	1 quart	5 gallons	1,2	1,2	
	Battery fluid, alkali, with electronic equipment or actuating device	Corrosive material	NA2797	Corrosive	None	173.259	Forbidden	5 pints	1,2	1,2	
	Battery fluid, alkali, with battery, *electric storage wet, empty or dry*	Corrosive material	UN2797	Corrosive	None	173.258	Forbidden	5 pints	1,2	1,2	
	Battery, lithium. See 173.206(f)										
W	Battery parts (*plates, grids etc. unwashed, exhausted*)	ORM-C		None	173.505	173.915			1,2	4	
	Benzaldehyde	Combustible liquid	NA1989	None	173.118a	None	No limit	No limit	1,2	1,2	
E	Benzene (*benzol*) (*RQ-1000/454*)	Flammable liquid	UN1114	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Benzene diazonium chloride (dry)	Forbidden									
	Benzene diazonium nitrate (dry)	Forbidden									
	Benzene phosphorus dichloride	Corrosive material	UN2798	Corrosive	None	173.250a	Forbidden	5 pints	1	5	
	Benzene phosphorus thiodichloride	Corrosive material	UN2799	Corrosive	None	173.250a	Forbidden	5 pints	1	5	
	Benzene triazonide	Forbidden									
	Benzidine	Poison B	UN1885	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1	
	Benzine	Flammable liquid	UN1115	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E	Benzoic acid (*RQ-5000/2270*)	ORM-E	NA9094	None	None	173.510	No limit	No limit	1,2	1,2	
	Benzoic derivative pesticide, liquid, n.o.s. (*compounds and preparations*),	Flammable liquid	UN2770	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Benzoic derivative pesticide, liquid, n.o.s. (*compounds and preparations*),	Poison B	UN2769	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Benzoic derivative pesticide, solid, n.o.s. (*compounds and preparations*), solid	Poison B	UN2769	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Benzonitrile (*RQ-1000/454*)	Combustible liquid	UN2224	None	173.118a	None	No limit	No limit	1,2	1,2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipment		
+/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Benzenehexachloride (dry)	Forbidden									
	Benzoyl azide	Forbidden									
E	Benzoyl chloride (*RQ-1000/454*)	Corrosive material	UN1736	Corrosive	173.244	173.247	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels
	Benzoyl peroxide	Organic peroxide	NA2085	Organic peroxide	None	173.157 173.158	Forbidden	25 pounds	1,2	1	
	Benzoyl peroxide, *more than 77% but less than 95% with water. See* Benzoyl peroxide.		UN2084								
	Benzoyl peroxide, *not less than 30% but not more than 52% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2089								
	Benzoyl peroxide, *not more than 72% as a paste. See* Organic peroxide, solid, n.o.s.		UN2087								
	Benzoyl peroxide, *not more than 77% with water. See* Benzoyl peroxide.		UN2090								
	Benzoyl peroxide, *technically pure or Benzoyl peroxide, more than 52% with inert solid. See* Benzoyl peroxide.		UN2085								
	Benzyl bromide (*bromomethylbenzene, alpha*)	Corrosive material	UN1737	Corrosive	None	173.281	Forbidden	5 pints	1	5	Keep dry
E	Benzyl chloride (*RQ-100/45.4*)	Corrosive material	UN1738	Corrosive	173.244	173.295	Forbidden	1 quart	1	4	Keep dry
	Benzyl chloroformate (*benzyl chlorocarbonate*)	Corrosive material	UN1739	Corrosive	None	173.288	Forbidden	5 pints	1	5	Keep dry
E	Beryllium chloride (*RQ-5000/2270*)	Poison B	NA1566	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Beryllium compound, n.o.s.	Poison B	UN1566	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Beryllium fluoride (*RQ-5000/2270*)	Poison B	NA1566	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Beryllium nitrate (*RQ-5000/2270*)	Oxidizer	UN2464	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	
	Biphenyl trisiloxide	Forbidden									
	Bipyridilium pesticide, liquid, n.o.s. (*compounds and preparations*).	Flammable liquid	UN2782	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Bipyridilium pesticide, liquid, n.o.s. (*compounds and preparations*).	Poison B	UN2781	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Bipyridilium pesticide, solid, n.o.s. (*compounds and preparations*).	Poison B	UN2781	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Black powder	Class A explosive		Explosive A	None	173.60	Forbidden	Forbidden	6	5	
	Black powder igniter with empty cartridge bag	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Blasting agent, n.o.s.	Blasting agent		Blasting agent	None	173.114a	Forbidden	100 pounds	1,2	1,2	
	Blasting caps. See Detonators, Class A or Class C explosives										
	Blasting caps, electric. See Detonators, Class A or Class C explosives										
	Blasting caps, percussion actuated. See Detonators, Class A or Class C explosives										
	Blasting caps with detonating cord. See Detonators, Class A or Class C explosives and Detonating primers, Class A or Class C explosives										
	Blasting caps with metal clad mild detonating fuze. See Detonators, Class A or Class C explosives										
	Blasting caps with safety fuse. See Detonators, Class A or Class C explosives										
	Blasting caps, with shock tubes. See Detonators, Class A or Class C explosives										
	Blasting gelatin. See High explosive										
	Blasting powder. See Black powder										
W	Bleaching powder, *containing 39% or less available chlorine*	ORM-C	UN2208	None	173.505	173.920			1,2	1,2	Keep dry. Stow separate from flammable liquids and acids. (Stow away from oils, grease, and similar organic materials).
	Boiler compound, liquid	Corrosive material	NA1760	Corrosive	173.244	173.249	1 quart	10 gallons	1,2	1,2	
	Bomb, explosive. See Explosive bomb										
	Bomb, explosive with gas, smoke, or incendiary material. See Explosive bomb										
	Bomb, fireworks. See Fireworks, special										
	Bomb, gas, smoke, or incendiary, nonexplosive. See Chemical ammunition, nonexplosive										
	Bomb, incendiary, or smoke without bursting charge. See Fireworks, special										
	Bomb, practice, with electric primer or electric squib (non-explosive). See 173.55										
	Bomb, sand-loaded or empty (non-explosive). See 173.55										
A	Bone oil	ORM-A		None	173.505	173.510	No limit	No limit			
	Booster, explosive	Class A explosive		Explosive A	None	173.68	Forbidden	Forbidden	6	5	
	Bordeaux arsenite, liquid	Poison B	NA2759	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Bordeaux arsenite, solid	Poison B	NA2759	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Boron tribromide	Corrosive material	UN2692	Corrosive	None	173.251	Forbidden	1 quart	1	5	
	Boron trichloride	Corrosive material	UN1741	Corrosive	None	173.251	Forbidden	1 quart	1,2	5	Stow in well ventilated space. Shade from radiant heat. Segregation same as for nonflammable gases
+	Boron trifluoride	Nonflammable gas	UN1008	Nonflammable gas and Poison	None	173.302	Forbidden	Forbidden	1	5	Stow away from living quarters and foodstuffs
	Boron trifluoride-acetic acid complex	Corrosive material	UN1742	Corrosive	173.244	173.247	1 quart	1 gallon	1,2	1,2	
	Bottles, having previously contained a hazardous material and not cleaned. See 173.29										

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
W	Box toe board (*nitrocellulose base*)	ORM-C		None	173.505	173.925			1.2	1.3	Provide cool stowage in a compartment having a temperature not exceeding 130 deg. F., well away from any sources of heat, and in position to protect or move, even in presence in event of fire. Separate from explosives, flammable liquids or gases, oxidizing materials, organic peroxides, or corrosive liquids.
	Box toe gum	Combustible liquid	UN2050	None	173.118a	None	No limit	No limit	1.2	1.2	
	Box toe gum	Flammable liquid	UN2059	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Bromine	Corrosive material	UN1744	Corrosive	None	173.252	Forbidden	1 quart	1	5	Keep cool
	Bromine azide	Forbidden									
	Bromine pentafluoride	Oxidizer	UN1745	Oxidizer	None	173.246	Forbidden	100 pounds	1	5	Shade from radiant heat. Segregation same as for corrosives
	Bromine trifluoride	Oxidizer	UN1746	Oxidizer and Poison	None	173.246	Forbidden	100 pounds	1	5	Shade from radiant heat. Segregation same as for corrosives
	4-Bromo-1,2-dinitrobenzene (unstable at 59 deg. C.)	Forbidden									
	1-Bromo-2-nitrobenzene (unstable at 59 deg. C.)	Forbidden									
	Bromoacetic acid, solid	Corrosive material	UN1938	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry
	Bromoacetic acid solution	Corrosive material	UN1938	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	Glass carboys in hampers not permitted under deck
	Bromoacetone, liquid	Poison A	UN1569	Poison gas	None	173.329	Forbidden	Forbidden	1	5	Segregation same as for flammable liquids
	Bromobenzene	Combustible liquid	UN2514	None	173.118a	None	No limit	No limit	1.2	1.2	
A	Bromochloromethane	ORM-A	UN1887	None	173.505	173.605	10 gallons	55 gallons			
	Bromoallene	Forbidden									
	Bromotoluene, alpha. See Benzyl bromide										
	Bromotrifluoromethane (*R-13B1 or H-1301*)	Nonflammable gas	UN1009	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1.2	1.2	
	Brucine, solid (*dimethoxy strychnine*)	Poison B	UN1570	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
W	Burlap bags, cleaned (*vacuum cleaned, wheel cleaned, or otherwise mechanically brushed*). *See* Burlap cloth										
W	Burlap bags, new. *See* Burlap cloth										
W	Burlap cloth (*Hessian*)	ORM-C		None	173.505	173.931			1.2	1.2	Keep dry. Stow away from organic liquids.
	Burnt cotton, not repacked	Flammable solid	NA1325	Flammable solid	None	173.159	Forbidden	Forbidden	1	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Burnt fiber	Flammable solid	NA1372	Flammable solid	None	173.169	Forbidden	Forbidden	1.2	1.2	Separate from flammable gases or liquids, oxidizing materials or organic peroxides.
	Burster, explosive	Class A explosive		Explosive A	None	173.65	Forbidden	Forbidden	5	5	
	Butadiene, inhibited	Flammable gas	UN1010	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1.2	1	Stow away from living quarters
	Butane or Liquefied petroleum gas. *See* Liquefied petroleum gas										
	1,2,4-Butanetriol trinitrate	Forbidden									
	tert-Butoxycarbonyl azide	Forbidden									
	n-Butyl-4,4-di-(*tert*-butylperoxy)valerate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2140								
	n-Butyl-4,4-di-(tert-butylperoxy)valerate, *not more than 52% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2141								
E	Butyl acetate (*RQ-5000/2270*)	Flammable liquid	UN1123	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	n-Butyl acid phosphate. *See* Acid butyl phosphate										
	Butyl alcohol	Flammable liquid	NA1120	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
E	Butylamine (*RQ-1000/454*)	Flammable liquid	UN1125	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Butyl bromide, *normal*	Flammable liquid	UN1126	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Butyl chloride	Flammable liquid	UN1127	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	tert-Butyl cumyl peroxide, *technically pure or* tert-Butyl cumene peroxide, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2091								
	Butyl ether	Flammable liquid	UN1149	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1.2	
	Butyl formate	Flammable liquid	UN1128	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	tert-Butyl hydroperoxide, *more than 72% but not more than 90% with water. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2094								
	tert-Butyl hydroperoxide, *not more than 72% with water. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2093								
	tert-Butyl hydroperoxide, *not more than 80% in di-tert-butyl peroxide and solvent. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2092								
	tert-Butyl hydroperoxide, *not more than 80% in di-tert-butyl peroxide or solvent. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2062								

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or rail car	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	tert-Butyl hydroperoxide, more than 90% with water	Forbidden									
	n-Butyl isocyanate	Flammable liquid	UN2485	Flammable liquid and Poison	None	173.119	1 quart	10 gallons	1,2	1	
	tert-Butyl isopropyl benzene hydroperoxide	Organic peroxide	NA2091	Organic peroxide	173.153	173.224	1 quart	1 quart	1,2	4	
	Butyl mercaptan	Flammable liquid	UN2347	Flammable liquid	None	173.141	Forbidden	10 gallons	1,3	5	
	tert-Butyl peroxy-2-ethylhexanoate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2143								
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 30% with 2,2-Di-(tert-butylperoxy)butane, not more than 35% with not less than 35% phlegmatizer. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2366								
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 12% with 2,2-Di-(tert-butylperoxy)butane, not more than 14% with not less than 14% phlegmatizer and 60% inert inorganic solid. See* Organic peroxide, solid, n.o.s.		UN2887								
	tert-Butyl peroxy-2-ethylhexanoate, *not more than 50% with phlegmatizer. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2888								
	tert-Butyl peroxy-3,5,5-trimethylhexanoate *or* tert-Butyl peroxyisononanoate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2104								
	3-tert-Butyl peroxy-3-phenylphthalide, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2596								
	tert-Butyl peroxyacetate, *not more than 76% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2095								
	tert-Butyl peroxyacetate, *not more than 32% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2096								

	tert-Butyl peroxyhexanoate, *not more than 75% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2892								
	tert-Butyl peroxybenzoate, *not more than 50% with inert inorganic solid. See* Organic peroxide, solid, n.o.s.		UN2890								
	tert-Butyl peroxybenzoate, *technically pure* or tert-Butyl peroxybenzoate, *more than 75% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2097								
	tert-Butyl peroxycrotonate, *not more than 78% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2183								
	n-Butyl peroxydicarbonate, *not more than 52% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2169								
	n-Butyl peroxydicarbonate, *not more than 27% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2170								
	n-Butyl peroxydicarbonate, more than 52% in solution	Forbidden									
	tert-Butyl peroxydiethylacetate, *33% with* tert-Butyl peroxybenzoate, *33%, and solvent. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2551								
	tert-Butyl peroxydiethylacetate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2144								
	tert-Butyl peroxyisobutyrate, *more than 52% but not more than 77% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2142								
	tert-Butyl peroxyisobutyrate, *not more than 52% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2562								
	tert-Butyl peroxyisobutyrate, more than 77% in solution	Forbidden									
	tert-Butyl peroxyisopropyl carbonate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2103								
	tert-Butyl peroxymaleate, *not more than 55% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2100								
	tert-Butyl peroxymaleate, *not more than 55% as a paste. See* Organic peroxide, solid, n.o.s.		UN2101								
	tert-Butyl peroxymaleate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2099								
	tert-Butyl peroxyneodecanoate, *not more than 77% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2177								
	tert-Butyl peroxyneodecanoate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2594								

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E=Exceptions A=Air W=Water	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	tert-Butyl peroxyphthalate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2105								
	tert-Butyl peroxypivalate, *not more than 77% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2110								
	Butyl phosphoric acid. *See* Acid butyl phosphate										
F	n-Butyl phthalate (*RQ-100/45.4*)	ORM-E	NA9095	None	None	173.510	No limit	No limit	1.2	1.2	
	Butyl trichlorosilane	Corrosive material	UN1747	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	Butyraldehyde	Flammable liquid	UN1129	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
E	Butyric acid (*RQ-5000/2270*)	Corrosive material	UN2820	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	
	Cacodylic	Forbidden									
E	Cadmium acetate (*RQ-100/45.4*)	ORM-E	NA2570	None	None	173.510	No limit	No limit	1.2	1.2	
E	Cadmium bromide (*RQ-100/45.4*)	ORM-E	NA2570	None	None	173.510	No limit	No limit	1.2	1.2	
E	Cadmium chloride (*RQ-100/45.4*)	ORM-E	NA2570	None	None	173.510	No limit	No limit	1.2	1.2	If stowed under deck, must be stowed in a recoverable location.
E	Calcium arsenate, solid (*RQ-1000/454*)	Poison B	UN1573	Poison	173.364	173.367 173.368	50 pounds	200 pounds	1.2	1.2	
E	Calcium arsenite, solid (*RQ-1000/454*)	Poison B	NA1574	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
	Calcium bisulfite solution. *See* Calcium hydrogen sulfite solution										
E	Calcium carbide (*RQ-5000/2270*)	Flammable solid	UN1402	Flammable solid and Dangerous when wet	None	173.178	Forbidden	25 pounds	1.2	1.2	Keep dry. Stow away from copper, its alloys, and salts
	Calcium chlorate	Oxidizer	UN1452	Oxidizer	173.153	173.183	25 pounds	100 pounds	1.2	1.2	Separate from ammonium compounds. Stow away from powdered metals and cyanide
	Calcium chlorite	Oxidizer	UN1453	Oxidizer	None	173.160	Forbidden	100 pounds	1.2	1.2	Separate from ammonium compounds, powdered materials, and cyanides
E	Calcium chromate (*RQ-1000/454*)	ORM-E	NA9096	None	None	173.510	No limit	No limit	1.2	1.2	
AW	Calcium cyanamide, not hydrated (*containing more than 0.1% calcium carbide*)	ORM-C	UN1403	None	None	173.345	25 pounds	200 pounds	1.2	1.2	Segregation same as for flammable solids labeled Dangerous When Wet
E	Calcium cyanide, solid or Calcium cyanide mixture, solid (*RQ-10/4.54*)	Poison B	UN1575	Poison	173.370	173.370	25 pounds	200 pounds	1.2	1.2	Stow away from corrosive liquids. Keep dry
E	Calcium dodecylbenzenesulfonate (*RQ-1000/454*)	ORM-E	NA9097	None	None	173.510	No limit	No limit	1.2	1.2	
E	Calcium hypochlorite, hydrated (*minimum 5.5% but not more than 10% water, and containing more than 39% available chlorine*) (*RQ-100/45.4*)	Oxidizer	UN2208	Oxidizer	173.153	173.217	50 pounds	100 pounds	1.2	1.2	
E	Calcium hypochlorite mixture, *dry. (Containing more than 39% available chlorine)* (*RQ-100/45.4*)	Oxidizer	UN1748	Oxidizer	173.153	173.217	50 pounds	100 pounds	1.2	1.2	Keep cool and dry
	Calcium, metal	Flammable solid	UN1401	Flammable solid and Dangerous when wet	173.153	173.154	25 pounds	100 pounds	1.2	4	Keep cool and dry. Segregation same as for flammable solids labeled Dangerous When Wet
	Calcium, metal, crystalline	Flammable solid	NA1401	Flammable solid and Dangerous when wet	None	173.231	Forbidden	25 pounds	1.2	5	Keep cool and dry. Segregation same as for flammable solids labeled Dangerous When Wet
	Calcium nitrate (*See 173.182(a) Note*)	Oxidizer	UN1454	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
AW	Calcium oxide	ORM-B	UN1910	None	173.505	173.850	25 pounds	100 pounds	1.2	1.2	Keep dry. Stow away from explosives, acids, combustible materials, and ammonium salts
	Calcium permanganate	Oxidizer	UN1456	Oxidizer	173.153	173.154	25 pounds	100 pounds	1.2	1.2	Separate from ammonium compounds and hydrogen peroxide
	Calcium peroxide	Oxidizer	UN1457	Oxidizer	173.153	173.156	25 pounds	100 pounds	1.2	1.2	Keep dry
	Calcium phosphide	Flammable solid	UN1360	Flammable solid and Dangerous when wet	None	173.181	Forbidden	25 pounds	1	1	Keep cool and dry. Segregation same as for flammable solids labeled Dangerous When Wet
	Calcium resinate	Flammable solid	UN1313	Flammable solid	None	173.166	Forbidden	125 pounds	1	5	
	Calcium resinate, fused	Flammable solid	UN1314	Flammable solid	None	173.166	Forbidden	125 pounds	1	5	
	Calcium silicon (*powder*)	Flammable solid	UN1406	Flammable solid and Dangerous when wet	173.153	173.178	Forbidden	25	1.2	4	Segregation same as for flammable solids labeled Dangerous when wet
AW	Camphene	ORM-A	NA9011	None	173.505	173.610	No limit	No limit	1.2	1.2	Stow away from foodstuffs and living quarters
	Camphor oil	Combustible liquid	UN1130	None	173.118a	None	No limit	No limit	1.2	1.2	
	Cannon prime	Class C explosive		None	None	173.107	50 pounds	150 pounds	1.2	5	
	Caprylyl peroxide solution	Organic peroxide	NA2129	Organic peroxide	173.153	173.221	1 quart	1 quart	1.2	4	Keep cool. Stow separate from combustible materials, explosives, or acids
	Caps, *blasting. See* Detonators, Class A or Class C explosives										
	Caps, *toy. See* Toy caps										
E	Captan (*RQ-10/4.54*)	ORM-E	NA9099	None	None	173.510	100 pounds	No limit	1.2	1.2	
	Carbamate pesticide, liquid, n.o.s. (*compounds and preparations*).	Flammable liquid	UN2758	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Carbamate pesticide, liquid, n.o.s. (*compounds and preparations*).	Poison B	UN2757	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Carbamate pesticide, solid, n.o.s. (*compounds and preparations*).	Poison B	UN2757	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
EA	Carbaryl (*RQ-100/45.4*)	ORM-A	NA2757	None	173.505	173.510	No limit	No limit	1.2	1.2	
E	Carbofuran (*RQ-10/4.54*)	Poison B	NA2757	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
E	Carbofuran mixture, liquid (RQ-10/4.54)	Poison B	NA2757	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
E	Carbolic acid. *See* Phenol										

§ 172.101 Hazardous Materials Table—Continued

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E	Carbolic acid, liquid (fenol or acid containing over 50% phenol). *See* Phenol, liquid										
E	Carbon bisulfide, *or* Carbon disulfide (RQ-5000/2270)	Flammable liquid	UN1131	Flammable liquid	None	173.121	Forbidden	Forbidden	3	3	Keep cool. Not permitted on any vessel transporting explosives
	Carbon dioxide, liquefied	Nonflammable gas	UN2187	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1.2	1.2	
	Carbon dioxide-nitrous oxide mixture	Nonflammable gas	UN1015	Nonflammable gas	173.306	173.304	150 pounds	300 pounds	1.2	1.2	
	Carbon dioxide-oxygen mixture	Nonflammable gas	UN1014	Nonflammable gas	173.306	173.304	150 pounds	300 pounds	1.2	1.2	
AW	Carbon dioxide, solid, *or* Dry ice, *or* Carbonice	ORM-A	UN1845	None	None	173.615	440 pounds	440 pounds	1	1	Stow away from open ventilators. Stow away from cylinders or cylinder manifolds, loaded or dry
	Carbon monoxide	Flammable gas	UN1016	Flammable gas	173.306	173.302	Forbidden	150 pounds	1	4	
	Carbon remover, liquid	Flammable liquid	UN1133	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
EAW	Carbon tetrachloride (RQ-5000/2270)	ORM-A	UN1846	None	173.505	173.620	1 quart	55 gallons	1.2	1.2	Stow away from living quarters
	Carbonyl chloride. See Phosgene										
	Carboys, empty, must be classed for the hazardous material previously contained in carboy. See 173.29										
	Cartridge bags, empty, with black powder igniter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1.3	1.3	
	Cartridge cases, empty, primed	Class C explosive		None	None	173.107	50 pounds	150 pounds	1.3	1.3	
	Cartridge, practice ammunition	Class C explosive		Explosive C	None	173.101a	50 pounds	150 pounds	1.2	1.2	
	Casein oil. See Gasoline or Naptha										
	Casinghead gasoline. See Gasoline										
W	Castor Beans	ORM-C		None	173.505	173.932			1.2	1.2	Stow away from living quarters and foodstuffs. Bulk shipments permitted in tight vans or containers only on cargo vessels (Castor beans only)
W	Castor pomace. *See* Castor beans										
E	Caustic, potash, dry, solid, flake, bead, or granular. *See* Potassium hydroxide, dry, etc.										
E	Caustic soda, liquid or solution. *See* Sodium hydroxide solution										
W	*Cellosolve. See* Ethylene glycol monoethyl ether										
W	*Cellosolve acetate. See* Ethylene glycol monoethyl ether acetate										
	Cement, adhesive, n.o.s. *See* Cement, liquid, n.o.s.										
	Cement, container, linoleum, tile, *or* wallboard, liquid	Flammable liquid	NA1133	Flammable liquid	173.118	173.132	1 quart	15 gallons	1.2	1	
	Cement, leather	Flammable liquid	NA1133	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Cement, liquid, n.o.s.	Combustible liquid	NA1133	None	173.118a	None	No limit	No limit	1.2	1.2	
	Cement, liquid, n.o.s.	Flammable liquid	NA1133	Flammable liquid	173.118	173.132	1 quart	10 gallons	1.2	1	
	Cement, pyroxylin	Flammable liquid	NA1133	Flammable liquid	173.118	173.132	1 quart	15 gallons	1.2	1	
	Cement, roofing, liquid	Flammable liquid	NA1133	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Cement, rubber	Flammable liquid	NA1133	Flammable liquid	173.118	173.132	1 quart	15 gallons	1.2	1	
	Cesium metal	Flammable solid	UN1407	Flammable solid and Dangerous when wet	None	173.206	Forbidden	25 pounds	1.2	5	Segregation same as for flammable solids labeled Dangerous When Wet
	Charcoal, activated	Flammable solid	UN1362	Flammable solid	173.162	173.162	25 pounds	200 pounds	1.3	1.3	
	Charcoal briquettes *or* briquets	Flammable solid	NA1361	Flammable solid	173.162	173.162	50 pounds	50 pounds	1.2	1.2	
	Charcoal screenings, made from 'pinon' wood	Flammable solid	NA1361	Flammable solid	173.162	173.162	25 pounds	200 pounds	1.2	1.	
	Charcoal screenings, wet	Forbidden									
	Charcoal, shell	Flammable solid	NA1361	Flammable solid	173.162	173.162	25 pounds	200 pounds	1.2	1.2	
	Charcoal, wet	Forbidden									
	Charcoal, wood, ground, crushed, granulated, *or* pulverized	Flammable solid	NA1361	Flammable solid	173.162	173.162	25 pounds	200 pounds	1.2	1.2	
	Charcoal, wood, lump	Flammable solid	NA1361	Flammable solid	173.162	173.162	50 pounds	50 pounds	1.2	1.2	
	Charcoal wood screenings, other than 'pinon' wood screenings	Flammable solid	NA1361	Flammable solid	None	173.162	Forbidden	Forbidden	1	1	
	Charged oil well jet perforating gun (*total explosive content in guns 20 pounds or [illegible] per motor vehicle*)	Class A explosive		Explosive A	None	173.53 173.80	Forbidden	Forbidden			Forbidden
	Charged oil well jet perforating gun (*total explosive content in guns not exceeding 20 pounds per motor vehicle or special offshore down hole tool pallet*)	Class C explosive		Explosive C	None	173.53 173.110	Forbidden	Forbidden	1.2	5	Forbidden
	Chemical ammunition, explosive. See Ammunition, chemical, explosive, with ...										

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
					(a)	(b)	(a)	(b)	(a)	(b)	(c)
E A W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	Exceptions	Specific requirements	Passenger carrying aircraft or rail	Cargo only aircraft	Cargo vessel	Passenger vessel	Other requirements
	Chemical ammunition, nonexplosive (*containing a Poison B material*)	Poison B	UN2016	Poison	173.343	173.350	Forbidden	55 gallons			See correct shipping name of applicable Poison B material for stowage, special handling, and special segregation requirements
	Chemical ammunition, nonexplosive (*containing an irritating material*)	Irritating material	UN2017	Irritant	None	173.383	Forbidden	20 pounds			See correct shipping name of applicable Irritant material for stowage, special handling, and special segregation requirements
	Chemical ammunition, nonexplosive (*containing a Poison A material*)	Poison A	UN2016	Poison gas	None	173.330	Forbidden	Forbidden			See correct shipping name of applicable Poison A material for stowage, special handling, and special segregation requirements
	Chemical kit	Corrosive material	NA1760	Corrosive	173.286		1 quart	1 quart	1.2	1.2	
	Chlorate and borate mixture (*containing more than 28% chlorate*)	Oxidizer	UN1458	Oxidizer	173.153	173.229	25 pounds	100 pounds	1.2	4	Stow away from ammonium compounds and away from powdered metals
	Chlorate and magnesium chloride mixture (*containing more than 28% chlorate*)	Oxidizer	UN1459	Oxidizer	173.153	173.229	25 pounds	100 pounds	1.2	4	Stow away from ammonium compounds, and away from powdered metals
	Chlorate explosive, dry. See High explosive										
	Chlorate, n.o.s.	Oxidizer	UN1461	Oxidizer	173.153	173.163	25 pounds	100 pounds	1.2	4	Stow away from ammonium compounds and away from powdered metals
	Chlorate, n.o.s., wet	Oxidizer	NA1461	Oxidizer	173.153	173.163	25 pounds	200 pounds	1.2	4	Stow away from ammonium compounds and away from powdered metals
	Chlorate of potash. *See* Potassium chlorate										
	Chlorate of soda. *See* Sodium chlorate										
	Chlorate powder. *See* High explosive										
E	Chlordane, liquid (*RQ-1/0.454*)	Flammable liquid	NA2762	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
E	Chlordane, liquid (*RQ-1/0.454*)	Combustible liquid	NA2762	None	173.118a	None	No limit	No limit	1.2	1.2	
	Chloric acid	Oxidizer	NA2626	Oxidizer and Poison	None	173.237	Forbidden	Forbidden			Forbidden
	Chloride of phosphorus. *See* Phosphorus trichloride										
	Chloride of sulfur. *See* Sulfur chloride										
W	Chlorinated lime (*chloride of lime*.) *See* Bleaching powder										
+ E	Chlorine (*RQ-10/4.54*)	Nonflammable gas	UN1017	Nonflammable gas and Poison	None	173.304 173.314 173.315	Forbidden	Forbidden	1.2	5	Stow in a well-ventilated space. Stow away from organic materials
	Chlorine azide	Forbidden									
	Chlorine dioxide hydrate, frozen	Oxidizer	NA9191	Oxidizer and Poison	None	173.231	Forbidden	Forbidden			Forbidden
	Chlorine dioxide, hydrate	Forbidden									
	Chloroacetic acid, liquid or solution	Corrosive material	UN1750	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	Glass carboys in hampers not permitted under deck
	Chloroacetic acid, solid	Corrosive material	UN1751	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry
	Chloroacetophenone, gas, liquid, or solid (*CN*)	Irritating material	UN1697	Irritant	None	173.382	Forbidden	75 pounds	1	5	
	Chloroacetyl chloride	Corrosive material	UN1752	Corrosive	None	173.253	Forbidden	1 quart	1	5	Keep dry
E	Chlorobenzene (*RQ-100/45.4*)	Flammable liquid	UN1134	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1.2	
E	Chlorobenzol. *See* Chlorobenzene										
	p-Chlorobenzoyl peroxide	Organic peroxide	UN2113	Organic peroxide	None	173.153 173.156	Forbidden	25 pounds	1	1	
	p-Chlorobenzoyl peroxide, *not more than 75% with water. See* p-Chlorobenzoyl peroxide		UN2113								
	p-Chlorobenzoyl peroxide, *not more than 52% as a paste. See* Organic peroxide, solid, n.o.s.		UN2114								
	p-Chlorobenzoyl peroxide, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2115								
	Chlorodinitrobenzene. See Dinitrochlorobenzene										
	1-Chloro-1,1-difluoroethane. *See* Chlorodifluoroethane (*R-142b*)										
+	Chlorodifluoroethane (*R-142b*) or (1-Chloro-1,1-difluoroethane)	Flammable gas	UN2517	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1.2	1	
	Chlorodifluoromethane (*R-22*)	Nonflammable gas	UN1018	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1.2	1	
	Chlorodifluoro-methane and chloropentafluoroethane mixture (*constant boiling mixture*) (*R-502*) *See* Refrigerant gas, n.o.s.										
E A W	Chloroform (*RQ-5000/2270*)	ORM-A	UN1888	None	173.505	173.650	10 gallons	55 gallons	1.2	1.2	Stow away from living quarters and foodstuffs
+	4-Chloro-o-toluidine hydrochloride	Poison B	UN1579	Poison	None	173.362	Forbidden	1 quart	1.2	1.2	
	Chloropentafluoroethane (*R-115*)	Nonflammable gas	UN1020	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1.2	1.2	
	3-Chloroperoxybenzoic acid, *not more than 86% with 3-chloroperoxybenzoic acid. See* Organic peroxide, solid, n.o.s.		UN2755								
	Chlorophenyltrichlorosilane	Corrosive material	UN1753	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
–	Chloropicrin, absorbed	Poison B	NA1583	Poison	None	173.357	Forbidden	Forbidden	1	5	Keep cool
–	Chloropicrin and methyl chloride mixture	Poison A	UN1582	Poison gas and Flammable gas	None	173.329	Forbidden	Forbidden	1	5	Keep cool. Segregation same as for flammable gases
–	Chloropicrin and nonflammable, nonliquefied compressed gas mixture	Poison A	NA1955	Poison gas and Flammable gas	None	173.329	Forbidden	Forbidden	1	5	Keep cool
–	Chloropicrin, liquid	Poison B	UN1580	Poison	None	173.357	Forbidden	Forbidden	1	5	Keep cool

§ 172.101 Hazardous Materials Table—Continued

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
+/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
+	Chloropicrin mixture (*containing no compressed gas or Poison A liquid*)	Poison B	UN1583	Poison	None	173.357	Forbidden	Forbidden	1	5	Keep cool
A	Chloroplatinic acid, solid	ORM-B	UN2507	None	173.505	173.800	25 pounds	100 pounds			
	Chloroprene, inhibited	Flammable liquid	UN1991	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Chloroprene, uninhibited	Forbidden									
	2-Chloropropene	Flammable liquid	UN2456	Flammable liquid	None	173.119	Forbidden	10 gallons	1,2	5	
E	Chlorosulfonic acid (*RQ-1000/454*)	Corrosive material	UN1754	Corrosive	173.244	173.254	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels
E	Chlorosulfonic acid-sulfur trioxide mixture (*RQ-1000/454*)	Corrosive material	UN1754	Corrosive	173.144	173.254	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels
	Chlorotetrafluoroethane (*R-124*)	Nonflammable gas	UN1021	Nonflammable gas	173.306	173.304 173.314	150 pounds	300 pounds	1,2	1,2	
	Chlorotrifluoromethane (*R-13*)	Nonflammable gas	UN1022	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1,2	1,2	
EA	Chlorpyrifos (*RQ-1/0.454*)	ORM-A	NA2783	None	173.505	173.510	100 pounds	No limit	1,2	1,2	
E	Chromic acetate (*RQ-1000/454*)	ORM-E	NA9101	None	None	173.510	No limit	No limit	1,2	1,2	
E	Chromic acid mixture, dry (*RQ-1000/454*)	Oxidizer	NA1463	Oxidizer	173.153	173.164	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs
E	Chromic acid, solid (*RQ-1000/454*)	Oxidizer	NA1463	Oxidizer	173.153	173.164	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs. Stow separate from flammable liquids and solids
E	Chromic acid solution (*RQ-1000/454*)	Corrosive material	UN1755	Corrosive	173.244	173.287	1 quart	1 gallon	1	1	
E	Chromic anhydride. *See* Chromic acid, solid										
	Chromic fluoride, solid	Corrosive material	UN1756	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
	Chromic fluoride solution	Corrosive material	UN1757	Corrosive	173.244	173.245	1 quart	1 gallon	1,2	1,2	
E	Chromic sulfate (*RQ-1000/454*)	ORM-E	NA9100	None	None	173.510	No limit	No limit	1,2	1,2	
E	Chromic trioxide. *See* Chromic acid, solid										
	Chromium oxychloride *or* Chromyl chloride	Corrosive material	UN1758	Corrosive	None	173.247	Forbidden	1 gallon	1	1	Keep dry. Glass carboys not permitted on passenger vessels
E	Chromous chloride (*RQ-1000/454*)	ORM-E	NA9102	None	None	173.510	No limit	No limit	1,2	1,2	
	Cigar and cigarette lighter fluid. See Lighter fluid										
	Cigarette lighter (*or other similar ignition device*)	Flammable gas	UN1057	Flammable gas	173.21 173.10	173.306	21 ounces	25 pounds	1	1	
	Cigarette lighter (*or other similar ignition* [illegible])	Flammable liquid	UN[illegible]	Flammable liquid	173.21 173.[illegible]	173.[illegible]	[illegible]	Forbidden	1	1	

	[illegible] gas [illegible]. See Chemical ammunition, nonexplosive										
	Coal briquettes, hot	Forbidden									
	Coal facings. *See* Coal ground bituminous, etc.										
	Coal gas. See Hydrocarbon gas, nonliquefied										
	Coal, ground bituminous, sea coal, coal facings, etc.	Flammable solid	NA1361	Flammable solid	173.163		Forbidden	Forbidden	1	1	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Coal oil (*export shipment only*). *See* Kerosene										
	Coal tar distillate	Combustible liquid	UN1137	None	173.118a	None	No limit	No limit	1,2	1,2	
	Coal tar distillate	Flammable liquid	UN1136	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Coal tar dye, liquid (*not otherwise specifically named in 172.101*)	Corrosive material	NA2801	Corrosive	173.244	173.249a	1 quart	10 gallons	1,2	1,2	
	Coal tar light oil	Combustible liquid	NA1137	None	173.118a	None	No limit	No limit	1,2	1,2	
	Coal tar light oil	Flammable liquid	NA1136	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Coal tar naptha	Combustible liquid	NA2553	None	173.118a	None	No limit	No limit	1,2	1,2	
	Coal tar naptha	Flammable liquid	NA2553	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Coal tar oil	Combustible liquid	NA1137	None	173.118a	None	No limit	No limit	1,2	1,2	
	Coal tar oil	Flammable liquid	NA1136	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
	Coating solution	Flammable liquid	UN1139	Flammable liquid	173.118	173.132	1 quart	15 gallons	1,2	1	
E	Cobaltous bromide (*RQ-1000/454*)	ORM-E	NA9103	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cobaltous formate (*RQ-1000/454*)	ORM-E	NA9104	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cobaltous sulfamate (*RQ-1000/454*)	ORM-E	NA9105	None	None	173.510	No limit	No limit	1,2	1,2	
	Cobalt resinate, precipitated	Flammable solid	UN1318	Flammable solid	None	173.156	Forbidden	125 pounds	1,2	1,2	
	Cocculus, solid (*fishberry*)	Poison B	UN1584	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
W	Coconut meal pellets *containing at least 6% and not more than 13% moisture and not more than 10% residual fat content*	ORM-C		None	173.505	173.935			1,2	4	Keep dry
	Coir. *See* Fibers										
	Coke, hot	Forbidden									
	Collodion	Flammable liquid	NA2059	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Cologne spirits (*alcohol*)	Flammable liquid	NA1170	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
	Columbian spirits (*wood alcohol*)	Flammable liquid	NA1230	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
	Combination fuze	Class C explosive		Explosive C	None	173.105	50 pounds	150 pounds	1,3	1,3	
	Combination primer	Class C explosive		None	None	173.107	50 pounds	150 pounds	1,3	5	
	Combustible liquid, n.o.s.	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
✓/ E/ A/ W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Commercial shaped charge. See High explosive										
	Common fireworks. *See* Fireworks, common										
	Compound, cleaning, liquid	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Compound, cleaning, liquid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	
	Compound, cleaning, liquid	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1.2	1.2	
	Compound, cleaning, liquid (*containing phosphoric acid, acetic acid, sodium hydroxide or potassium hydroxide*)	Corrosive material	NA1760	Corrosive	173.244	173.245a	1 quart	1 quart	1.2	1.2	
	Compound, cleaning, liquid (containing hydrochloric (muriatic) acid)	Corrosive material	NA1789	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	
	Compound, cleaning, liquid (containing hydrofluoric acid)	Corrosive material	NA1790	Corrosive	173.244	173.256	1 quart	1 gallon	1	4	
	Compound, enamel	Flammable liquid	NA1263	Flammable liquid	173.118	173.119	1 quart	55 gallons	1.2	1	
	Compound, lacquer, paint, or varnish removing, reducing, or thinning, liquid	Combustible liquid	NA1142	None	173.118a				1.2	1.2	
	Compound, lacquer, paint, or varnish removing, liquid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 gallon	1.2	1.2	
	Compound, lacquer, paint, or varnish, removing, reducing, or thinning, liquid	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	55 gallons	1.2	1	
	Compound, polishing, liquid	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	55 gallons	1.2	1	
	Compound, rust preventing or Compound, rust removing	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 gallon	1.2	1.2	
	Compound, tree or weed killing, liquid	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1.2	1.2	
	Compound, tree or weed killing, liquid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	
	Compound, tree or weed killing, liquid	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Compound, tree or weed killing, liquid	Poison B	NA2810	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Compound, tree or weed killing, solid	Oxidizer	NA1479	Oxidizer	173.153	173.154 173.225	25 pounds	100 pounds			
	Compound, vulcanizing, liquid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	
	Compound, water treatment, liquid. *See* Water treatment, liquid										
	Compressed gas, n.o.s.	Flammable gas	UN1954	Flammable gas	173.306	173.302 173.304 173.305	Forbidden	300 pounds	1	4	
	Compressed gas, n.o.s.	Nonflammable gas	UN1956	Nonflammable gas	173.306 173.307	173.302 173.304 173.305	150 pounds	300 pounds	1.2	1.2	
	Consumer commodity	ORM-D		None	173.5050b	173.510 173.1200	65 pounds gross	65 pounds gross			Not subject to requirements of Part 176
	Container, reused or empty, must be classed for the hazardous material previously contained. See 173.28, 173.29										
E	Copper acetoarsenite, solid (*RQ-100/45.4*)	Poison B	UN1585	Poison	173.364	173.367	50 pounds	200 pounds	1.2	1.2	
	Copper acetylide	Forbidden									
	Copper amine azide	Forbidden									
	Copper arsenite, solid	Poison B	UN1586	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
	Copper based pesticide, liquid, n.o.s. (*compound and preparations*).	Flammable liquid	UN2776	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Copper based pesticide, liquid, n.o.s. (*compounds and preparations*).	Poison B	UN2775	Poison	173.345	173.346	1 quart	55 gallons	1.2	1.2	
	Copper based pesticide, solid, n.o.s. (*compounds and preparations*).	Poison B	UN2775	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
EA	Copper chloride (*RQ-10/4.54*)	ORM-B	UN2802	None	173.505	173.600	25 pounds	100 pounds	1.2	1.2	
	Copper cyanide	Poison B	UN1587	Poison	173.370	173.370	25 pounds	200 pounds	1.2	1.2	Stow away from acids
	Copper tetramine nitrate	Forbidden									
W	Copra	ORM-C	UN1363	None	173.505	173.960			1.2	1.2	Segregation same as for flammable solids. Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Copra pellets. See Coconut meal pellets										
	Cordeau detonant fuse	Class C explosive		Explosive C	None	173.104	50 pounds	300 pounds	1.2	1.2	
	Corrosive liquid, n.o.s.	Corrosive material	UN1760	Corrosive	173.244	173.245 173.245a	1 quart	1 quart	1	4	For material that meets only the corrosion to skin criteria of 49 CFR 173.240(a)(1), 'under deck' stowage is also authorized if the description includes the additional entry specified by 172.203(k)(2).
	Corrosive liquid, poisonous, n.o.s.	Corrosive material	UN2922	Corrosive and Poison	173.244	173.245	1 quart	1 quart	1	4	
	Corrosive solid, n.o.s.	Corrosive material	UN1759	Corrosive	173.244	173.245b	25 pounds	100 pounds	1	4	For material that meets only the corrosion to skin criteria of 49 CFR 173.240(a)(1), 'under deck' stowage is also authorized if the description includes the additional entry specified by 172.203(k)(2).
	Cosmetics, liquid, n.o.s.	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	
	Cosmetics, n.o.s.	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1.2	1.2	
	Cosmetics, n.o.s.	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Cosmetics, n.o.s.	Flammable solid	NA1325	Flammable solid	173.153	173.154	25 pounds	100 pounds	1.2	1.2	
	Cosmetics, n.o.s.	Oxidizer	NA1479	Oxidizer	173.153	173.154	25 pounds	100 pounds	1.2	1.2	
	Cosmetics, solid, n.o.s.	Corrosive material	NA1759	Corrosive	173.244	173.245b	25 pounds	100 pounds	1.2	1.2	Keep dry

(1) E/A/W	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(3A) Identification number	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(c) Other requirements
W	Cotton	ORM-C		None	173.505	173.965			1,2	1,2	Segregation same as for flammable solids. See 176.900 to 176.904
W	Cotton batting	ORM-C		None	173.505	173.970			1,2	1,2	Keep dry. Stow away from vegetable or animal oils. See 176.900 to 176.904
W	Cotton batting dross. *See* Cotton batting										
	Cotton, burnt. See Burnt cotton										
W	Cotton seed hull fiber or shavings, pulp, or cut linters. See Cotton batting										
	Cotton sweepings. *See* Cotton waste										
W	Cotton wadding. *See* Cotton batting										
W	Cotton waste	ORM-C		None	173.505	173.975			1,2	1,2	Keep dry. Stow away from vegetable or animal oils. See 176.900 to 176.904
	Cotton waste, oily (*with more than 5% of animal or vegetable oil*)	Flammable solid	UN1364	Flammable solid	173.167		Forbidden	Forbidden	1,2	1,2	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
E	Coumaphos (*RQ-10/4.54*)	Poison B	NA2783	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Coumaphos mixture, liquid (*RQ-10/4.54*)	Poison B	NA2783	Poison	173.345	173.346	1 pint	1 quart	1,2	1,2	
	Creosote, coal tar	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Creosote oil. See Creosote coal tar										
E	Cresol (*RQ-1000/454*)	Corrosive material	UN2076	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
E	Crotonaldehyde (*RQ-100/45.4*)	Flammable liquid	UN1143	Flammable liquid and Poison	None	173.119	1 quart	1 gallon	1,2	1	
	Crotonic acid	Corrosive material	UN2823	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Crotonylene	Flammable liquid	UN1144	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Crude nitrogen fertilizer solution (*more than 25.3 p.s.i.g.*)	Nonflammable gas	NA1043	Nonflammable gas	173.306	173.304 173.314	Forbidden	300 pounds	1,3	1,3	
	Crude oil, petroleum	Combustible liquid	UN1267	None	173.118a	None	No limit	No limit	1,2	1,2	
	Crude oil, petroleum	Flammable liquid	UN1267	Flammable liquid	173.118	173.118	1 quart	10 gallons	1,2	1	
	Cumene hydroperoxide	Organic peroxide	UN2116	Organic peroxide	173.153	173.224	1 quart	1 quart	1,2	4	
	Cumene hydroperoxide, *technically pure. See* Cumene hydroperoxide.		UN2116								
E	Cupric acetate (*RQ-100/45.4*)	ORM-E	NA9108	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cupric arsenite (*RQ-100/45.4*)	ORM-E	NA9111	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cupric benzoate (*RQ-100/45.4*)	ORM-E	NA9111	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cupric chlorate, ammoniated (*RQ-100/45.4*)	ORM-E	NA9111	None	None	173.510	No limit	No limit	1,2	1,2	
E	Cupric tartrate (*RQ-100/45.4*)	ORM-E	NA9111	None	None	173.510	No limit	No limit	1,2	1,2	
	Cuprethylene-diamine solution	Corrosive material	UN1761	Corrosive	173.244	173.245	1 quart	1 gallon	1,2	1,2	
	Cyanide or cyanide mixture, dry	Poison B	UN1588	Poison	173.364	173.370	25 pounds	200 pounds	1,2	1,2	Keep dry. Stow away from acids
	Cyanide solution, n.o.s.	Poison B	UN1935	Poison	173.345	173.352	1 quart	55 gallons	1,2	1,2	Stow away from acids
	Cyanogen bromide	Poison B	UN1889	Poison	None	173.379	Forbidden	25 pounds	1	5	Shade from radiant heat. Segregation same as for corrosive materials
E	Cyanogen chloride *containing less than 0.9% water (RQ-10/4.54)*	Poison A	UN1589	Poison gas and Flammable gas	None	173.328	Forbidden	Forbidden	1	5	Shade from radiant heat
	Cyanogen gas	Poison A	UN1026	Poison gas and Flammable gas	None	173.328	Forbidden	Forbidden	1	5	Segregation same as for flammable gas
	Cyanuric triazide	Forbidden									
E	Cyclohexane (*RQ-1000/454*)	Flammable liquid	UN1145	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Cyclohexanone peroxide, *50 to 85% peroxide*	Organic peroxide	UN2119	Organic peroxide	173.157	173.158	Forbidden	25 pounds	1	1	
	Cyclohexanone peroxide, *as a paste with not more than 9% by weight active oxygen. See* Cyclohexanone peroxide, *50 to 85% peroxide.*		UN2896								
	Cyclohexanone peroxide, *in solution with not more than 9% by weight active oxygen. See* Cyclohexanone peroxide, *50 to 85% peroxide*		UN2118								
	Cyclohexanone peroxide, *not over 50% peroxide*	Organic peroxide	UN2896	Organic peroxide	173.153	173.154	2 pounds	25 pounds	1,2	1,2	
	Cyclohexanone peroxide and di-(1-hydroxy cyclohexyl) peroxide mixture. *See appropriate cyclohexanone peroxide entry*										
	Cyclohexenyl trichlorosilane	Corrosive material	UN1762	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	Cyclohexylamine	Flammable liquid	UN2357	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Cyclohexyl trichlorosilane	Corrosive material	UN1763	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	Cyclopentane	Flammable liquid	UN1146	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Cyclopentane, methyl	Flammable liquid	UN2298	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Cyclopropane	Flammable gas	UN1027	Flammable gas	173.306	173.304	Forbidden	300 pounds	1,2	1	
	Cyclotetramethylene tetranitramine (dry) (HMX)	Forbidden									
	Cyclotetramethylene tetranitramine, wet with not less than 10% water. See High explosive										
	Cyclotrimethylene trinitramine, desensitized. See High explosive										
	Cyclotrimethylene trinitramine, wet with not less than 10% water. See High explosive										

§ 172.101 Hazardous Materials Table—Continued

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
					(a)	(b)	(a)	(b)	(a)	(b)	(c)
EA W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	Exceptions	Specific requirements	Passenger carrying aircraft or railcar	Cargo only aircraft	Cargo vessel	Passenger vessel	Other requirements
	Cylinder, empty, including ton tanks, must be classed for the hazardous material previously contained in cylinder. See 173.29										
EA	2,4-D. *See* 2,4-Dichlorophenoxyacetic acid										
EA	DDT *or* Dichlorodiphenyltrichloroethane *(RQ-110.434)*	Other regulated material, n.o.s.	NA2761	None	173.505	173.510	No limit	No limit	1,2	1,2	
	Dead oil. See Creosote, coal tar										
	Decaborane	Flammable solid	UN1868	Flammable solid and Poison	None	173.236	Forbidden	25 pounds	1,2	1,2	
	Decahydronaphthalene	Combustible liquid	UN1147	None	173.118a	None	No limit	No limit	1,2	1,2	
	Decalin. See Decahydronaphthalene										
	Decanoyl peroxide, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2120								
	Delay connectors. See Detonators, Class A *or* Class C explosives *and* Detonating primers, Class A *or* Class C explosives										
	Delay electric igniter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Denatured alcohol	Flammable liquid	NA1986	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
	Depth bomb. See Explosive bomb										
EA	2,4-D ester. *See* 2,4-Dichlorophenoxyacetic acid ester										
	Detonating fuze, Class A, *with or without radioactive components*	Class A explosive		Explosive A	None	173.69	Forbidden	Forbidden	6	5	
	Detonating fuze, Class C explosive	Class C explosive		Explosive C	None	173.113	50 pounds	150 pounds	1,3	1,3	
	Detonating primers, Class A explosives. *See 173.53*	Class A explosive		Explosive A	None	173.66	Forbidden	Forbidden	6	5	Do not stow detonating primers, Class A explosives with any high explosives. Do not handle at the same time high explosives are being loaded.
	Detonating primers, Class C explosives. *See 173.100*	Class C explosive		Explosive C	None	173.66	173.103(d)	150 pounds	1,2	1,2	The maximum net quantity in one package for this material shipped aboard passenger vessel is limited to 50 pounds. Must be stowed in portable magazine or metal locker. Do not stow detonating primers, Class C explosives with high explosives. Do not handle at the same time high explosives are being loaded.
	Detonators, commercial. See Detonators, Class A *or* Class C explosives										
	Di-(1-hydroxycyclohexyl) peroxide, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2148								
	Di-(1-hydroxytetrazole) (dry)	Forbidden									
	Di-(1-naphthoyl)peroxide	Forbidden									
	Di-(2-ethylhexyl) peroxydicarbonate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2122								
	Di-(2-ethylhexyl) peroxydicarbonate, *not more than 67% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2123								
	Di-(2-ethylhexyl) phosphonic acid	Corrosive material	NA1902	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Di-(2-methylbenzoyl)peroxide, *not more than 85% with water. See* Organic peroxide, solid, n.o.s.		UN2593								
	1,3-Di-(2-tert-butylperoxyisopropyl) benzene, *technically pure or more than 60% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2112								
	1,3-Di-(2-tert-butylperoxyisopropyl) benzene and 1,4-Di-(2-tert-butylperoxyisopropyl) benzene mixture, *technically pure or more than 40% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2112								
	1,4-Di-(2-tert-butylperoxyisopropyl) benzene, *technically pure or more than 40% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2112								
	Di-(3,5,5-trimethyl-1,2-dioxolanyl-3)peroxide, *not more than 50% as a paste, with phlegmatizer. See* Organic peroxide, solid, n.o.s.		UN2597								
	2,2-Di-(4,4-di-tert-butylperoxycyclohexyl)propane, *not more than 42% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2168								
	2,2-Di-(4,4-di-tert-butylperoxycyclohexyl) propane, more than 42% with inert solid	Forbidden									
	Di-(4-tert-butylcyclohexyl)peroxydicarbonate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2154								

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E=Exempt A=Air W=Water	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Di-(4-tert-butylcyclohexyl)peroxydicarbonate, *not more than 42%, stable dispersion, in water. See* Organic peroxide, liquid or solution, n.o.s.		UN2894								
	Diacetone alcohol	Flammable liquid	UN1148	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Diacetone alcohol peroxide, *not more than 57% in solution with not more than 9% hydrogen peroxide, not less than 26% diacetone alcohol and not less than 9% water, total active oxygen content not more than 9%. See* Organic peroxide, liquid or solution, n.o.s.		UN2163								
	Diacetone alcohol peroxides, more than 57% in solution with more than 9% hydrogen peroxide, less than 26% diacetone alcohol and less than 9% water, total active oxygen content more than 9% by weight	Forbidden									
	Diacetyl	Flammable liquid	UN2346	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	p-Diazidobenzene	Forbidden									
	1,2-Diazidoethane	Forbidden									
EA	Diazinon (*RQ-1/0.454*)	ORM-A	NA2783	None	173.505	173.510	No limit	No limit	1.2	1.2	
	1,1'-Diazoaminonaphthalene	Forbidden									
	Diazoaminotetrazole (dry)	Forbidden									
	Diazodinitrophenol. *See* Initiating explosive										
	Diazodinitrophenol (dry)	Forbidden									
	Diazodiphenylmethane	Forbidden									
	Diazonium nitrates (dry)	Forbidden									
	Diazonium perchlorates (dry)	Forbidden									
	1,3-Diazopropane	Forbidden									
	Dibenzyl peroxydicarbonate, *not more than 87% with water. See* Organic peroxide, solid, n.o.s.		UN2149								
	Dibenzyl peroxydicarbonate, more than 87% with water	Forbidden									
	Di-(beta-nitrosoethyl)ammonium nitrate	Forbidden									
	Dibromide or dibromide mixtures	Flammable gas	UN1911	Flammable gas	None	173.302	Forbidden	Forbidden	1	1	Separate from Chlorates and materials bearing the standard label

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
EAW	1,2-Dibromoethane. *See* Ethylene dibromide										
E	Dicamba (*RQ-1000/454*)	ORM-E	NA2769	None	None	173.510	No limit	No limit	1.2	1.2	
	Dicetyl peroxydicarbonate, *not more than 42%, stable dispersion, in water. See* Organic peroxide, liquid or solution, n.o.s.		UN2895								
	Dicetyl peroxydicarbonate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2164								
E	Dichlobenil (*RQ-1000/454*)	ORM-E	NA2769	None	None	173.510	No limit	No limit	1.2	1.2	
E	Dichlone (*RQ-1/0.454*)	ORM-E	NA2761	None	None	173.510	No limit	No limit	1.2	1.2	
	N,N'-Dichlorazodicarbonamidine (salts of). (dry)	Forbidden									
E	*1,1-Dichloro-2,2-bis(parachlorophenyl) ethane. See* TDE										
	Dichloroacetic acid	Corrosive material	UN1764	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	Glass carboys in hampers not permitted under deck
	Dichloroacetyl chloride	Corrosive material	UN1765	Corrosive	173.244	173.247	1 quart	1 gallon	1	4	Keep dry
	Dichloroacetylene	Forbidden									
EA	Dichlorobenzene, ortho, liquid (*RQ-100/45.4*)	ORM-A	UN1591	None	173.505	173.510	No limit	No limit	1.2	1.2	
EA	Dichlorobenzene, para, solid (*RQ-100/45.4*)	ORM-A	UN1592	None	173.505	173.510	No limit	No limit	1.2	1.2	
	2,4-Dichlorobenzoyl peroxide, *not more than 75% with water. See* Organic peroxide, solid, n.o.s.		UN2137								
	2,4-Dichlorobenzoyl peroxide, *not more than 52% as a paste. See* Organic peroxide, solid, n.o.s.		UN2136								
	2,4-Dichlorobenzoyl peroxide, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2139								
	2,4-Dichlorobenzoyl peroxide, more than 75% with water	Forbidden									
	Dichlorobutene	Flammable liquid	NA2924	Flammable liquid	173.118	173.119	10 gallons	1 quart	1.2	1	
	Dichlorobutene	Corrosive material	NA2924	Corrosive	173.244	173.245 173.245a	1 quart	10 gallons	1	4	
A	Dichlorodifluoroethylene	ORM-A	NA9018	None	173.505	173.605	10 gallons	55 gallons			
	Dichlorotetrafluoromethane (*R-12*)	Nonflammable gas	UN1026	Nonflammable gas	173.306	173.304 173.314 173.315	150 pounds	300 pounds	1.2	1.2	
	Dichlorodifluoromethane and difluoroethane mixture (*constant boiling mixture*) (*R-500*). See Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										
	Dichlorodifluoromethane (*R-12*) and dichlorotetrafluoroethane (*R-114*) mixture. *See* Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										
	Dichlorodifluoromethane (*R-12*) and chlorodifluoromethane (*R-22*) mixture. *See* Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
EAW	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Dichlorodifluoromethane (*R-12*) and trichlorofluoromethane (*R-11*) mixture. *See* Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										
	Dichlorodifluoromethane (*R-12*) and trichlorofluoromethane (*R-11*) and chlorodifluoroethane (*R-22*) mixture. *See* Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										
	Dichlorodifluoromethane (*R-12*) and trichlorotrifluoroethane (*R-113*) mixture. *See* Refrigerant gas, n.o.s. or Dispersant gas, n.o.s.										
EA	Dichlorodiphenyltrichloroethane. *See* DDT										
	Dichloroethylene	Flammable liquid	UN1150	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dichloroisopropyl ether	Corrosive material	UN2490	Corrosive	173.244	173.254	1 quart	10 gallons	1,2	1,2	
A	Dichloromethane or Methylene chloride	ORM-A	UN1593	None	173.505	173.605	10 gallons	55 gallons			
	Dichloropentane	Flammable liquid	UN1152	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
EA	2,4-Dichlorophenoxyacetic acid (*RQ-100/45.4*)	ORM-A	NA2765	None	173.505	173.510	50 pounds	No limit	1,2	1,2	
E	2,4-Dichlorophenoxyacetic acid ester (*RQ-100/45.4*)	ORM-E	NA2765	None	None	173.510	No limit	No limit	1,2	1,2	
	Dichlorophenyltrichlorosilane	Corrosive material	UN1766	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
E	Dichloropropane. *See* Propylene dichloride										
E	Dichloropropene (*RQ-3000/2270*)	Flammable liquid	UN2047	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dichloropropene and propylene dichloride mixture	Flammable liquid	NA2047	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E	2,2-Dichloropropionic acid (*RQ-5000/2270*)	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
E	Dichlorvos (*RQ-10/4.54*)	Poison B	NA2783	Poison	173.345	173.346	Forbidden	1 quart	1,2	1,2	
E	Dichlorvos mixture dry (*RQ-10/4.54*)	Poison B	NA2783	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Dicumyl peroxide 50% solution	Organic peroxide	NA2121	Organic peroxide	173.153	173.224	1 quart	1 quart	1,2	4	
	Dicumyl peroxide, technically pure or Dicumyl peroxide, with inert solid. *See* Dicumyl peroxide, dry		UN2121								

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	Dicyclohexyl peroxydicarbonate, technically pure. *See* Organic peroxide, solid, n.o.s.		UN2133								
	Dicyclohexyl peroxydicarbonate, *not more than 91% with water. See* Organic peroxide, solid, n.o.s.		UN2133								
EA	Dieldrin (*RQ-1/0.454*)	ORM-A	NA2761	None	173.505	173.510	No limit	No limit	1,2	1,2	
	Diesel fuel. *See* Fuel oil										
	Diethanol nitrosamine dinitrate (dry)	Forbidden									
E	Diethylamine (*RQ-1000/454*)	Flammable liquid	UN1154	Flammable liquid	173.118	173.119	Forbidden	5 pints	1,2	4	
	Diethyl cellosolve. *See* Ethylene glycol diethyl ether										
	Diethyl dichlorosilane	Flammable liquid	UN1767	Flammable liquid	None	173.135	Forbidden	10 gallons	1	1	Keep dry. Segregation same as for corrosives
	Diethylene glycol dinitrate. See 173.51	Forbidden									
	Diethylgold bromide	Forbidden									
	Diethyl ketone	Flammable liquid	UN1156	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Diisopropyl peroxydicarbonate, *not more than 27% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2135								
	Diethyl peroxydicarbonate, more than 27% in solution	Forbidden									
	Diethylzinc. See Pyrophoric liquid, n.o.s.										
	Difluoroethane (*R-152a*)	Flammable gas	UN1030	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	1,2	
	Difluorophosphoric acid, anhydrous	Corrosive material	UN1768	Corrosive	None	173.275	Forbidden	1 gallon	1,2	1,2	
	2,2-Dihydroperoxy propane, *not more than 25% with inert organic solid. See* Organic peroxide, solid, n.o.s.		UN2178								
	Dihydropyran	Flammable liquid	UN2376	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	4	
	1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (chrysamminic acid)	Forbidden									
	Diiodoacetylene	Forbidden									
	Diisobutyl ketone	Combustible liquid	UN1157	None	173.118a	None	No limit	No limit	1,2	1,2	
	Diisobutyryl peroxide, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2182								
	Diisooctyl acid phosphate	Corrosive material	UN1902	Corrosive	173.244	173.256	1 quart	1 quart	1,2	1,2	Glass carboys in hampers not permitted under deck
	Diisopropylamine	Flammable liquid	UN1158	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Diisopropylbenzene hydroperoxide solution, *not over 72% peroxide*	Organic peroxide	UN2171	Organic peroxide	173.153	173.224	1 quart	1 quart	1,2	4	
	Diisopropylbenzene hydroperoxide, *not more than 72% in solution. See* Diisopropylbenzene hydroperoxide solution, *not more than 72% peroxide.*		UN2171								

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E, A, W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Diisopropylbenzene hydroperoxide, more than 72% in solution	Forbidden									
	Diisopropyl ether	Flammable liquid	UN1159	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Diisotridecyl peroxydicarbonate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2889								
	2,5-Dimethyl-2,5-di-(2-ethylhexanoylperoxy)hexane, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2157								
	2,5-Dimethyl-2,5-di-(benzoylperoxy)hexane, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2172								
	2,5-Dimethyl-2,5-di-(benzoylperoxy)hexane, *not more than 82% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2173								
	2,5-Dimethyl-2,5-dihydroperoxy hexane, *not more than 82% with water. See* Dimethylhexane dihydroperoxide, *with 18% or more water*		UN2174								
	2,5-Dimethyl-2,5-dihydroperoxy hexane, more than 82% with water	Forbidden									
	2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2155								
	2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane, *not more than 52% with inert solid. See* Organic peroxide, solid n.o.s.		UN2156								
	2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexyne-3, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2158								
	2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexyne-3, *not more than 52% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2159								
E	Dimethylamine, aqueous solution (*RQ-1000/454*)	Flammable liquid	UN1160	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	2,3-Dimethylbutane	Flammable liquid	UN2457	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Dimethyl carbonate	Flammable liquid	UN1161	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dimethyl chlorothiophosphate	Corrosive material	NA2922	Corrosive	173.244	173.245	1 quart	1 quart	1,2	1,2	
	1,4-Dimethylcyclohexane	Flammable liquid	UN2263	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dimethyldichlorosilane	Flammable liquid	UN1162	Flammable liquid	None	173.135	Forbidden	5 pints	1,2	1	
+	Dimethyl ether	Flammable gas	UN1033	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	1	
	Dimethylhexane dihydroperoxide (dry)	Forbidden									
	Dimethylhexane dihydroperoxide, (with 18% or more water)	Organic peroxide	UN2174	Organic peroxide	None	173.157	Forbidden	25 pounds	1	1	
	Dimethylhydrazine, unsymmetrical (*UDMH*)	Flammable liquid	UN1163	Flammable liquid and Poison	None	173.145	Forbidden	5 pints	1,2	1	Keep dry. Separate from corrosive and oxidizing materials, and organic peroxides.
	Dimethyl phosphorochlorodithioate. *See* Dimethyl chlorothiophosphate.										
	Dimethyl sulfate	Corrosive material	UN1595	Corrosive	None	173.255	Forbidden	1 quart	1	5	Keep cool
	Dimethyl sulfide	Flammable liquid	UN1164	Flammable liquid	None	173.119	Forbidden	10 gallons	1,2	5	
	Dimyristyl peroxydicarbonate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2595								
	Dimyristyl peroxydicarbonate, *not more than 22%, stable dispersion, in water. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2892								
	1,3-Dinitro-1,1,4,4-tetramethylolbutanetetranitrate (dry)	Forbidden									
	2,4-Dinitro-1,3,5-trimethylbenzene	Forbidden									
	1,3-Dinitro-4,5-dinitrosobenzene	Forbidden									
	1,3-Dinitro-5,5-dimethyl hydantoin	Forbidden									
	Dinitro-7,8-dimethylglycoluril (dry)	Forbidden									
E	Dinitrobenzene, solid, *or* Dinitrobenzol, solid (*RQ-1000/454*)	Poison B	UN1597	Poison	173.364	173.371	50 pounds	200 pounds	1,2	1,2	
E	Dinitrobenzene solution (*RQ-1000/454*)	Poison B	UN1597	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Dinitrochlorobenzene	Poison B	UN1577	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
A	Dinitrocyclohexylphenol	ORM-A	NA9026	None	173.505	173.510	No limit	No limit			
	1,2-Dinitroethane	Forbidden									
	1,1-Dinitroethane (dry)	Forbidden									
	Dinitroglycoluril	Forbidden									
	Dinitromethane	Forbidden									
E	Dinitrophenol solution (*RQ-1000/454*)	Poison B	UN1599	Poison	173.345	173.362a	1 quart	55 pounds	1,2	1,2	Stow away from heavy metals and their compounds. If flash point is 141 deg F or less segregation same as for flammable liquids
	Dinitropropylene glycol	Forbidden									
	2,4-Dinitroresorcinol (heavy metal salts of) (dry)	Forbidden									

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	4,6-Dinitroresorcinol (heavy metal salts of), (dry)	Forbidden									
	3,5-Dinitrosalicylic acid (lead salt), (dry)	Forbidden									
	Dinitrosobenzylamidine and salts of (dry)	Forbidden									
	2,2-Dinitrostilbene	Forbidden									
E	Dinitrotoluene, liquid (*RQ-1000/454*)	ORM-E	UN1600	None	None	173.510	No limit	No limit	1,2	1,2	
E	Dinitrotoluene, solid (*RQ-1000/454*)	ORM-E	UN2038	None	None	173.510	No limit	No limit	1,2	1,2	
	o,o'-Dinitrotoluylmethylether	Forbidden									
	1,9-Dinitroxy pentamethylene-2,4,6,8-tetramine (dry)	Forbidden									
	Di-n-propyl peroxydicarbonate, *technically pure. See* Organic peroxide, liquid, n.o.s.		UN2176								
	Dioxane	Flammable liquid	UN1165	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dioxolane	Flammable liquid	UN1166	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Diphenylaminechloroarsine (*DM*)	Irritating material	UN1698	Irritant	None	173.382	Forbidden	75 pounds	1	5	
	Diphenyl dichlorosilane	Corrosive material	UN1769	Corrosive	None	173.260	Forbidden	10 gallons	1	1	
	Diphenyl methyl bromide, solid	Corrosive material	UN1770	Corrosive	173.244	173.245b	25 pounds	100 pounds	1	4	
	Diphenyl methyl bromide solution	Corrosive material	UN1770	Corrosive	173.244	173.247	1 quart	1 gallon	1,2	1,2	
	Diphosgene. See Phosgene										
E	Diquat (*RQ-1000/454*)	ORM-E	NA2781	None	None	173.510	No limit	No limit	1,2	1,2	
	Di-sec-butyl peroxydicarbonate, *technically pure. See* Organic peroxide, liquid or solution, n.o.s.		UN2150								
	Di-sec-butyl peroxydicarbonate, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2151								
	Disinfectant, liquid	Corrosive material	UN1903	Corrosive	173.244	173.245	1 quart	10 gallons	1	4	
	Disinfectant, liquid	Poison B	UN1601	Poison	173.345	173.346	1 quart	55 gallons	1,2	1	
	Disinfectant, liquid, n.o.s.	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Disinfectant, solid	Poison B	UN1601	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1	
	Dispersant gas, n.o.s. *See* Refrigerant gas, n.o.s.										

	[illegible]										
E	Disulfoton (*RQ-1/0.454*)	Poison B	NA2783	Poison	None	173.356	Forbidden	1 quart	1,2	5	
E	Disulfoton mixture, dry (*RQ-1/0.454*)	Poison B	NA2783	Poison	173.377	173.377	Forbidden	200 pounds	1,2	4	
E	Disulfoton mixture, liquid (*RQ-1/0.454*)	Poison B	NA2783	Poison	173.356	173.356	1 pint	1 quart	1,2	5	
	Di-tert-butyl peroxide, *technically pure. See* Organic peroxide, liquid or solution, n.o.s.		UN2102								
	1,1-Di-(tert-butylperoxy)-3,3,5-trimethyl cyclohexane, *technically pure. See* Organic peroxide, liquid or solution n.o.s.		UN2145								
	1,1-Di-(tert-butylperoxy)-3,3,5-trimethyl cyclohexane, *not more than 57% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2146								
	1,1-Di-(tert-butylperoxy)-3,3,5-trimethyl cyclohexane, *not more than 58% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2147								
	2,2-Di-(tert-butylperoxy)butane, *not more than 55% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2111								
	2,2-Di-(tert-butylperoxy) butane, *more than 55% in solution*	Forbidden									
	1,1-Di-(tert-butylperoxy)cyclohexane, *technically pure. See* Organic peroxide, liquid or solution, n.o.s.		UN2179								
	1,1-Di-(tert-butylperoxy)cyclohexane, *not more than 77% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2180								
	1,2-Di-(tert-butylperoxy)cyclohexane, *not more than 77% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2181								
	1,1-Di-(tert-butylperoxy)cyclohexane, *not more than 40% with inert inorganic solid with not less than 13% phlegmatizer. See* Organic peroxide, solid, n.o.s.		UN2885								
	1,1-Di-(tert-butylperoxy)cyclohexane, *not more than 50% with phlegmatizer. See* Organic peroxide, liquid or solution, n.o.s.		UN2897								
	Di-(tert-butylperoxy) phthalate, more than 55% in solution	Forbidden									
	Di-(tert-butylperoxy)phthalate, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2106								
	Di-(tert-butylperoxy)phthalate, *not more than 55% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2107								
	Di-(tert-butylperoxy)phthalate, *not more than 55% as a paste. See* Organic peroxide, solid, n.o.s.		UN2108								
	2,2-Di-(tert-butylperoxy)propane, *not more than 50% with phlegmatizer. See* Organic peroxide, liquid or solution, n.o.s.		UN2883								

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
+/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	2,2-Di-(tert-butylperoxy)propane, *not more than 40% with inert inorganic solid with not less than 13% phlegmatizer. See* Organic peroxide, solid, n.o.s.		UN2884								
	Dithiocarbamate pesticide, liquid, n.o.s. *(compounds and preparations).*	Flammable liquid	UN2772	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Dithiocarbamate pesticide, liquid, n.o.s. *(compounds and preparations).*	Poison B	UN2771	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Dithiocarbamate pesticide, solid, n.o.s. *(compounds and preparations).*	Poison B	UN2771	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Diuron *(RQ-100/45.4)*	ORM-E	NA2767	None	None	173.510	No limit	No limit	1,2	1,2	
	Divinyl ether	Flammable liquid	UN1167	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	
E	Dodecylbenzenesulfonic acid *(RQ-1000/454)*	Corrosive material	NA2584	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Dodecyl trichlorosilane	Corrosive material	UN1771	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	Dressing, leather	Combustible liquid	NA1142	None	173.118a	None	No limit	No limit	1,2	1,2	
	Dressing, leather	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Drier. See Paint drier, liquid										
	Drill cartridge. See 173.53										
	Drugs, n.o.s.	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Drugs, n.o.s.	Flammable solid	NA1325	Flammable solid	173.153	173.154	25 pounds	100 pounds	1,2	1,2	
	Drugs, n.o.s.	Oxidizer	NA1479	Oxidizer	173.153	173.154	25 pounds	100 pounds	1,2	1,2	
	Drugs, n.o.s.	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Drugs, liquid, n.o.s.	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	1 quart	1,2	1,2	
	Drugs, liquid, n.o.s.	Poison B	NA2810	Poison	173.345	173.346	1 quart	55 gallons	1,3	1	
	Drugs, solid, n.o.s.	Corrosive material	NA1759	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry
	Drugs, solid, n.o.s.	Poison B	NA2811	Poison	173.364	173.365	50 pounds	200 pounds	1,3	1,3	
	Drums, empty, must be classed for the hazardous material previously contained in drum. See 173.2[illegible]										
	[illegible]										

(1)	(2)	(3)	(3A)	(4)	(5)(a)	(5)(b)	(6)(a)	(6)(b)	(7)(a)	(7)(b)	(7)(c)
	[illegible]										
	[illegible] See High explosive										
[illegible]	EDTA. See [illegible] acid										
	Electric blasting caps. See Detonators, Class A or Class C explosives										
	Electric squib	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
E	Electrolyte (acid) battery fluid *(not over 47% acid) (RQ-1000/454). See* Battery fluid, acid.										
	Empty cartridge bag with black powder igniter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Enamel. *See* Paint, Enamel, Lacquer, *etc.*										
E	Endosulfan *(RQ-1/0.454)*	Poison B	NA2761	Poison	173.364	173.365	1 pound	10 pounds	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
E	Endosulfan mixture, liquid *(RQ-1/0.454)*	Poison B	NA2761	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
E	Endrin *(RQ-1/0.454)*	Poison B	NA2761	Poison	173.364	173.365	1 pounds	10 pounds	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
E	Endrin mixture, liquid *(RQ-1/0.454)*	Poison B	NA2761	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
	Engine, internal combustion				173.120						
	Engine starting fluid	Flammable gas	UN1960	Flammable gas	None	173.304	Forbidden	60 pounds	1,2	5	
E	Epichlorohydrin *(RQ-1000/454)*	Flammable liquid	UN2023	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
	Eradicator, paint *or* grease, liquid	Flammable liquid	UN1850	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Escape *or* Evacuation slide, inflatable. *See* Life rafts, inflatable										
E	Etching acid, liquid, n.o.s. *(RQ-1000/454)*	Corrosive material	NA1790	Corrosive	None	173.299	Forbidden	10 pounds	1	5	
+	Ethane	Flammable gas	UN1035	Flammable gas	173.306	173.304	Forbidden	300 pounds	1,2	4	
	Ethanol amine dinitrate	Forbidden									
E	Ethion *(RQ-10/4.54)*	Poison B	NA2783	Poison	173.345	173.346	Forbidden	1 quart	1,2	1,2	
E	Ethion mixture, dry *(RQ-10/4.54)*	Poison B	NA2783	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Ethyl-3,3-di-(tert-butylperoxy)butyrate, *technically pure. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2184								
	Ethyl-3,3-di-(tert-butylperoxy)butyrate, *not more than 77% in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN2185								
	Ethyl-3,3-di-(tert-butylperoxy)butyrate, *not more than 50% with inert inorganic solid. See* Organic peroxide, solid, n.o.s.		UN2598								
	Ethyl acetate	Flammable liquid	UN1173	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Ethyl acrylate, inhibited	Flammable liquid	UN1917	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Ethyl alcohol	Flammable liquid	UN1170	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
E	Ethyl aldehyde. *See* Acetaldehyde										
E	Ethyl benzene *(RQ-1000/454)*	Flammable liquid	UN1175	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Ethyl borate	Flammable liquid	UN1176	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	Keep dry

§ 172.101 Hazardous Materials Table—Continued

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
—/E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger-carrying aircraft or railcar	(b) Cargo-only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Ethyl butyl acetate	Combustible liquid	UN1177	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethyl butyl ether	Flammable liquid	UN1179	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Ethyl butyraldehyde	Flammable liquid	UN1178	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Ethyl butyrate	Flammable liquid	UN1180	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1.2	
	Ethyl chloride	Flammable liquid	UN1037	Flammable liquid	None	173.123	Forbidden	See 173.123	1.2	1	Segregation same as for flammable gases
	Ethyl chloroacetate	Combustible liquid	UN1181	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethyl chloroformate (*chlorocarbonate*)	Flammable liquid	UN1182	Flammable liquid and Poison	None	173.286	Forbidden	5 pints	1.2	1	
	Ethyl chlorothioformate	Corrosive material	UN2826	Corrosive	173.244	173.245 173.245a	1 quart	1 quart	1.2	1	
	Ethyl crotonate	Flammable liquid	UN1862	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Ethyl dichlorosilane	Flammable liquid	UN1183	Flammable liquid	None	173.135	Forbidden	5 pints	1.2	1	
—	Ethylene	Flammable gas	UN1962	Flammable gas	173.306	173.304	Forbidden	300 pounds	1.2	4	
	Ethylene chlorohydrin	Poison B	UN1135	Poison	173.345	173.346	1 quart	55 gallons	1.2	1	
E	Ethylenediamine (*RQ-1000/454*)	Corrosive material	UN1604	Corrosive	173.244	173.245	1 quart	1 quart	1.2	1.2	Segregation same as for flammable liquids
	Ethylene diamine diperchlorate	Forbidden									
E	Ethylenediaminetetraacetic acid (*RQ-5000/2270*)	ORM-E	NA9117	None	None	173.510	No limit	No limit	1.2	1.2	
EAW	Ethylene dibromide (*RQ-1000/454*)	ORM-A	UN1605	None	173.505	173.620	1 quart	55 gallons	1.2	1.2	
E	Ethylene dichloride (*RQ-5000/2270*)	Flammable liquid	UN1184	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	Stow away from living quarters
	Ethylene glycol diethyl ether (*diethyl "Cellosolve"*)	Combustible liquid	UN1153	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethylene glycol dinitrate	Forbidden									
	Ethylene glycol monoethyl ether ("*Cellosolve*")	Combustible liquid	UN1171	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethylene glycol monoethyl ether acetate ("*Cellosolve acetate*")	Combustible liquid	UN1172	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethylene glycol monomethyl ether (*methyl "Cellosolve"*)	Combustible liquid	UN1188	None	173.118a	None	No limit	No limit	1.2	1.2	

	Ethylene imine, inhibited	Flammable liquid	UN1185	Flammable liquid and Poison	None	173.126	Forbidden	5 pints	1.2	1	
	Ethylene oxide	Flammable liquid	UN1040	Flammable liquid	None	173.124	Forbidden	See 173.124	1.2	1	Segregation same as for flammable gases
	Ethyl ether	Flammable liquid	UN1155	Flammable liquid	None	173.119	Forbidden	10 gallons	1.3	5	
	Ethyl formate	Flammable liquid	UN1190	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.3	4	
	Ethylhexaldehyde	Combustible liquid	UN1191	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethyl hydroperoxide (explodes above 100 deg C)	Forbidden									
	Ethyl lactate	Combustible liquid	UN1192	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethyl mercaptan	Flammable liquid	UN2363	Flammable liquid	None	173.141	Forbidden	10 gallons	1.2	1	
	Ethyl methylether	Flammable liquid	UN1039	Flammable liquid	None	173.119	Forbidden	10 gallons	1.3	1	Segregation same as for flammable gases
	Ethyl methyl ketone	Flammable liquid	UN1193	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Ethyl nitrate (*nitric ether*)	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	Forbidden	Forbidden	1.2	1	
	Ethyl nitrite (nitrous ether)	Flammable liquid	UN1194	Flammable liquid	None	173.119	Forbidden	Forbidden	1.3	5	
	Ethyl perchlorate	Forbidden									
	Ethyl phenyl dichlorosilane	Corrosive material	UN2435	Corrosive	None	173.280	Forbidden	10 gallons	1	5	
	Ethyl phosphonothioic dichloride, anhydrous	Corrosive material	NA1760	Corrosive	173.244	173.245 173.245a	1 quart	1 quart	1	4	
	Ethyl phosphonous dichloride, anhydrous	Corrosive material	NA2845	Corrosive	173.244	173.245 173.245a	1 quart	1 quart	1	4	
	Ethyl phosphorodichloridate	Corrosive material	NA1760	Corrosive	173.244	173.245 173.245a	1 quart	1 quart	1	4	
	Ethyl propionate	Flammable liquid	UN1195	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Ethyl silicate (*tetraethyl orthosilicate*)	Combustible liquid	UN1292	None	173.118a	None	No limit	No limit	1.2	1.2	
	Ethyl trichlorosilane	Flammable liquid	UN1196	Flammable liquid	None	173.135	Forbidden	5 pints	1.2	1	
	Etiologic agent, n.o.s.	Etiologic agent	NA2814	Etiologic agent	173.386	173.387	See 173.386	4 liters			Not permitted except under specific conditions approved by the Department
W	Excelsior (shredded wood) *when dry, clear, and free from oil*	ORM-C		None	173.505	173.980			1.3	1.3	Stow away from organic, corrosive, or oxidizing materials
	Explosive auto alarm	Class C explosive		Explosive C	None	173.111	50 pounds	150 pounds	1.2	1.2	
	Explosive bomb	Class A explosive		Explosive A	None	173.56	Forbidden	Forbidden	1.2	5	Magazine stowage authorized. No other cargo may be stowed in the same hold with these items
	Explosive cable cutter	Class C explosive		Explosive C	None	173.102	50 pounds	150 pounds	1.3	1.3	
	Explosive, forbidden. See Sec. 173.51	Forbidden									
	Explosive mine	Class A explosive		Explosive A	None	173.56	Forbidden	Forbidden	1.2	5	Magazine stowage authorized. No other cargo may be stowed in the same hold with these items

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		(8)
					(a)	(b)	(a)	(b)	(a)	(b)	
Symbols	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	Exceptions	Specific requirements	Passenger carrying aircraft or railcar	Cargo only aircraft	Cargo vessel	Passenger vessel	Other requirements
	Explosive, new approval, and evaluation. See 173.86										
	Explosive power device, Class B	Class B explosive		Explosive B	None	173.84	Forbidden	150 pounds	1.2	5	
	Explosive power device, Class C	Class C explosive		Explosive C	None	173.102	50 pounds	150 pounds	1.3	1.3	
	Explosive projectile	Class A explosive		Explosive A	None	173.56	Forbidden	Forbidden	1.2	5	Magazine stowage authorized. No other cargo may be stowed in the same hold with this material
	Explosive release device	Class C explosive		Explosive C	None	173.102	50 pounds	150 pounds	1.3	1.3	
	Explosive rivet	Class C explosive		Explosive C	None	173.100	50 pounds	150 pounds	1.2	1.2	
	Explosive, sample for laboratory examination				173.86		Forbidden	See 173.86			
	Explosive torpedo	Class A explosive		Explosive A	None	173.56	Forbidden	Forbidden	1.2	5	Magazine stowage authorized. No other cargo may be stowed in the same hold with this material
	Extract, liquid, flavoring	Flammable liquid	UN1197	Flammable liquid	173.118	173.119	1 quart	10 gallons	1.2	1	
	Fabric with animal or vegetable oil. See Fibers or fabric, containing not more than 5% animal or vegetable fat										
AW	Feed, wet, mixed	ORM-C		None	173.505	173.960	Forbidden	Forbidden	3	3	Stow in cool, dry, well ventilated compartment. Do not stow bags over ten tiers high without trooping off. Do not overstow
W	Felt, waste. *See* Cotton waste										
	Felt, waste, wet. *See* Waste wool, wet										
E	Ferric ammonium citrate (*RQ-1000/454*)	ORM-E	NA9118	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ferric ammonium oxalate (*RQ-1000/454*)	ORM-E	NA9119	None	None	173.510	No limit	No limit	1.2	1.2	
	Ferric arsenate, solid	Poison B	UN1606	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
	Ferric arsenite, solid	Poison B	UN1607	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
EA	Ferric chloride, solid, *anhydrous* (*RQ-1000/454*)	ORM-B	UN1773	None	173.505	173.510	25 pounds	100 pounds	1.2	1.2	
E	Ferric chloride solution (*RQ-1000/454*)	Corrosive material	UN2582	Corrosive	173.244	173.245	1 quart	10 quarts	1.2	1.2	
E	Ferric fluoride (*RQ-100/45.4*)	ORM-E	NA9120	None	None	173.510	No limit	No limit	1.2	1.2	
E	Ferric nitrate (*RQ-1000/454*)	Oxidizer	UN1466	Oxidizer	173.153	173.182	25 pounds	100 pounds	1.2	1.2	
E	Ferric sulfate (*RQ-1000/454*)	ORM-E	NA9121	None	None	173.510	No limit	No limit	1.2	1.2	
W	Ferrochrome or ferrochrome [illegible]	ORM-C		None	173.505	173.965			1	1	
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2	1.2	Segregation same as for flammable solids labeled Dangerous When Wet
E	Ferrous ammonium sulfate (*RQ-1000/454*)	ORM-E	NA9122	None	None	173.510	No limit	No limit	1.2	1.2	
	Ferrous arsenate, solid	Poison B	UN1608	Poison	173.364	173.365	50 pounds	200 pounds	1.2	1.2	
EA	Ferrous chloride, solid (*RQ-100/45.4*)	ORM-B	NA1759	None	173.505	173.510	No limit	No limit	1.2	1.2	
E	Ferrous chloride, solution (*RQ-100/45.4*)	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	5 gallons	1.2	1.2	
E	Ferrous sulfate (*RQ-1000/454*)	ORM-E	NA9125	None	None	173.510	No limit	No limit	1.2	1.2	
	Fertilizer ammoniating solution *containing free ammonia (more than 25.3 p.s.i.g.)*	Nonflammable gas	UN1043	Nonflammable gas	173.306	173.304 173.314	Forbidden	300 pounds	1.2	4	
	Fertilizer, tankage. *See* Garbage, tankage										
	Fibers or fabric, containing not more than 5% animal or vegetable oil	Flammable solid	NA1373	Flammable solid	None	173.170	Forbidden	Forbidden	1.2	1.2	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
W	Fibers (*jute, hemp, flax, sisal, coir, kapok, and similar vegetable fibers*)	ORM-C	NA1372	None	173.505	173.965			1.2	1.2	Stow away from animal or vegetable oils. Segregation same as for flammable solids
	Fibers, burnt	Flammable solid	NA1372	Flammable solid	None	173.169	Forbidden	Forbidden	1.2	1.2	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Film (*nitrocellulose*)	Flammable solid	NA1324	Flammable solid	None	173.177	50 pounds	200 pounds	1.3	1.3	Stow away from other flammable cargo or substances
	Film, photographic, (including scrap film), safety, nonflammable, or slow burning. Not subject to requirements of this subchapter										
	Firecracker. See Fireworks, common or special										
	Firecracker salute. See Fireworks, common or special										
	Fire extinguisher	Nonflammable gas	UN1044	Nonflammable gas	173.306		150 pounds	300 pounds	1.2	1.2	
	Fire extinguisher charge containing not more than 50 grains of propellant explosive per unit. Not subject to requirements of this subchapter.										
	Fire extinguisher charge containing sulfuric acid	Corrosive material	UN1774	Corrosive	173.261		1 quart	1 gallon	1.2	1.2	
	Fireworks, common	Class C explosive		Explosive C	None	173.100 173.102	50 pounds	200 pounds	1.3	1.3	Passenger vessels in metal lockers only
	Fireworks, exhibition display piece. See Fireworks, special										
	Fireworks, special	Class B explosive		Explosive B	None	173.88 173.91	Forbidden	200 pounds	3	3	Passenger vessels in metal lockers only. Tor torpedoes must not be packed with other special fireworks
W	Fish meal *or* fish scrap containing 6% to 12% water	ORM-C	NA2216	None	173.505	173.995			1.2	1.2	Segregation same as for flammable solids. Separate from flammable gases or liquids, oxidizing materials, or organic peroxides. *Use double strip stowage* for cargo 6-12 percent moisture containing not more than 12 percent fat. *Use single strip stowage* for cargo 6-12 percent moisture containing 12-15 percent fat.
	Fish meal *or* fish scrap containing less than 6% or more than 12% water	Flammable solid	NA1374	Flammable solid	None	173.171	Forbidden	Forbidden	1.2	1.2	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Fissile radioactive material. *See* Radioactive material, fissile										
	Flame retardant compound liquid	Corrosive material	NA1760	Corrosive	173.244	173.291	1 quart	10 gallons	1.2	1.2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification numbers	Labels required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Flammable gas n.o.s. *See* Compressed gas n.o.s.										
	Flammable liquid, corrosive, n.o.s.	Flammable liquid	UN2924	Flammable liquid and Corrosive	None	173.119	1 quart	1 quart	1,2	1	
	Flammable liquid, n.o.s.	Flammable liquid	UN1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Flammable liquid, poisonous, n.o.s.	Flammable liquid	UN1992	Flammable liquid and Poison	None	173.119	1 quart	10 gallons	1,2	1	
	Flammable solid, corrosive, n.o.s.	Flammable solid	UN2925	Flammable solid and Corrosive	173.150	173.154	25 pounds	25 pounds	1	4	
	Flammable solid, n.o.s.	Flammable solid	UN1325	Flammable solid	173.150	173.154	25 pounds	25 pounds	1,2	1,2	
	Flammable solid, poisonous, n.o.s.	Flammable solid	UN2926	Flammable solid and Poison	173.150	173.154	25 pounds	25 pounds	1,2	1	
	Flare. See Fireworks, common										
	Flare, airplane. See Fireworks, special										
	Flash cannage. See Fireworks, special or Low explosives										
	Flash cracker. See Fireworks, common or special										
	Flash powder. See Fireworks, special or Low explosives										
	Flax. See Fibers										
	Flexible linear shaped charge, metal clad	Class C explosive		Explosive C	None	173.104	50 pounds	300 pounds	1,3	1,3	
	Flowers of sulfur. *See* Sulfur										
	Flue dust, poisonous	Poison B	NA2811	Poison	173.364	173.368	50 pounds	200 pounds	1,2	1,2	
	Fluoboric acid	Corrosive material	UN1775	Corrosive	173.244	173.283	1 quart	1 gallon	1,2	1,2	
E	Fluoric acid. *See* Hydrofluoric acid										
	Fluorine	Nonflammable gas	UN1045	Poison and Oxidizer	None	173.302	Forbidden	Forbidden	1	5	Stow in well ventilated space away from organic materials
	Fluorophosphonic acid, anhydrous. *See* Monofluorophosphonic acid, anhydrous										
	Fluosilicic acid. *See* Hydrofluosilicic acid										

	Fulminate explosive. See 173.51	Forbidden									
	Fulminate mercury. See 173.51	Forbidden									
E,A,W	Formaldehyde solution (*flash point more than 141 deg. F.; in containers of 110 gallons or less*) (*RQ-1000/454*)	ORM-A	UN2209	None	173.505	173.510	10 gallons	55 gallons	1,2	4	
E	Formaldehyde solution (*flash point not more than 141 deg. F.; in containers over 110 gallons*) (*RQ-1000/454*)	Combustible liquid	UN1198	None	173.118a	None	10 gallons	55 gallons	1,2	1,2	
E,A,W	Formaldehyde solution (*flash point not more than 141 deg. F.; in containers of 110 gallons or less*) (*RQ-1000/454*)	ORM-A	UN1198	None	173.505	173.510	10 gallons	55 gallons	1,2	4	
E	Formaldehyde solution (*flash point more than 141 deg. F.; in containers over 110 gallons*) (*RQ-1000/454*)	Combustible liquid	UN2209	None	173.118a	None	10 gallons	55 gallons	1,2	1,2	
	Formalin. *See* Formaldehyde solution										
E	Formic acid (*RQ-5000/2270*)	Corrosive material	UN1779	Corrosive	173.244	173.245 173.289	1 quart	5 gallons	1,2	1,2	Glass carboys in hampers not permitted under deck
E	Formic acid solution (*RQ-5000/2270*)	Corrosive material	UN1779	Corrosive	173.244	173.245 173.289	1 quart	5 gallons	1,2	1,2	
	Fuel, aviation, turbine engine	Flammable liquid	UN1863	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Fuel, aviation, turbine engine	Combustible liquid	UN1863	None	173.118a	None	No limit	No limit	1,2	1,2	
	Fuel oil	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Fuel oil, diesel. *See* Fuel oil										
	Fuel oil, No. 1, 2, 4, 5 or 6	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Fulminate of mercury (dry)	Forbidden									
	Fulminate of mercury, wet. See Initiating explosive										
	Fulminating gold	Forbidden									
	Fulminating mercury	Forbidden									
	Fulminating platinum	Forbidden									
	Fulminating silver	Forbidden									
	Fulminic acid	Forbidden									
E	Fumaric acid (*RQ-5000/2270*)	ORM-E	NA9126	None	None	173.510	No limit	No limit	1,2	1,2	
	Fumaryl chloride	Corrosive material	UN1780	Corrosive	173.244	173.245	1 quart	1 quart	1	1	Glass carboys not permitted
	Fumigant. See 173.132(a) Note 1										
	Furan	Flammable liquid	UN2389	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E	Furfural (*RQ-1000/454*)	Combustible liquid	UN1199	None	173.118a	None	No limit	No limit	1,2	1	
	Fusee (*railway or highway*)	Flammable solid	NA1325	Flammable solid	None	173.154a	50 pounds	200 pounds	1,3	1,3	
	Fuse igniter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Fuse, instantaneous	Class C explosive		Explosive C	173.100		50 pounds	150 pounds	1,2	1,2	
	Fuse lighter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Fusel oil	Combustible liquid	UN1201	None	173.118a	None	No limit	No limit	1,2	1,2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or rail car	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Fuze, mild detonating, metal clad	Class C explosive		Explosive C	None	173.104	50 pounds	300 pounds	1,2	1,2	
	Fuze, safety	Class C explosive		Explosive C	173.100	173.100	50 pounds	300 pounds	1,2	1,2	
	Fuze, combination	Class C explosive		Explosive C	None	173.100	50 pounds	150 pounds	1,3	1,3	
	Fuze, detonating	Class A explosive		Explosive A	None	173.65	Forbidden	Forbidden	6	5	
	Fuze, detonating, Class C explosive	Class C explosive		Explosive C	None	173.115	50 pounds	150 pounds	1,3	1,3	
	Fuze, detonating, radioactive	Class A explosive		Explosive A	None	173.65	Forbidden	Forbidden	6	5	
	Fuze, percussion	Class C explosive		Explosive C	None	173.105	50 pounds	150 pounds	1,3	1,3	
	Fuze, time	Class C explosive		Explosive C	None	173.105	50 pounds	150 pounds	1,3	1,3	
	Fuze, tracer	Class C explosive		Explosive C	None	173.105	50 pounds	150 pounds	1,3	1,3	
	Galactan trinitrate	Forbidden									
	Gallium metal, liquid	ORM-B	UN2803	None	None	173.861	Forbidden	Forbidden	1	1	None
	Gallium metal, solid	ORM-B	UN2803	None	None	173.862	40 pounds	40 pounds	1,3	1	Shade from radiant heat
W	Garbage tankage *containing 8% or more water*	ORM-C		None	173.505	173.1000			1,2	1,2	
	Garbage tankage, *containing less than 8% water*	Flammable solid	NA1325	Flammable solid	None	173.209	Forbidden	Forbidden	1	1	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Gas cylinder, empty. See Cylinder, empty										
	Gas drips, hydrocarbon	Combustible liquid	UN1864	None	173.118a	None	No limit	No limit	1,2	1,2	
	Gas drips, hydrocarbon	Flammable liquid	UN1864	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Gas identification set	Poison A	NA9035	Poison gas	None	173.331	Forbidden	Forbidden	1	5	
	Gas identification set	Irritating material	NA9035	Irritant	None	173.331	Forbidden	Forbidden	1	5	
	Gas mine. See Explosive mine										
	Gasohol *(gasoline mixed with ethyl alcohol). See* Gasoline										
	Gas oil. *See* Fuel oil										
	Gasoline (including casinghead and natural)	Flammable	[illegible]	Flammable	173.118	173.119	1 quart	10 gallons	1,2	1	

	[illegible]	[illegible]	[illegible]	[illegible] and Flammable gas	[illegible]	[illegible]	[illegible]	[illegible]	1	5	[illegible]
	Glycerol-1,3-dinitrate	Forbidden									
	Glycerol monoglucoside trinitrate	Forbidden									
	Glycerol monolactate trinitrate	Forbidden									
	Grenade *without bursting charge. (With incendiary material)*	Class B explosive		Explosive B	None	173.91	Forbidden	Forbidden	5	5	Passenger vessels in metal lockers only
	Grenade *without bursting charge. (With smoke charge)* (Smoke grenade)	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1,3	1,3	
	Grenade *without bursting charge. (With Poison A gas charge)*	Poison A	NA2016	Poison gas	None	173.330	Forbidden	Forbidden			*See* correct shipping name of applicable Poison A material for stowage, special handling, and special segregation requirements
	Grenade *without bursting charge. (With Poison B charge)*	Poison B	NA2016	[illegible]	None	173.330	Forbidden	Forbidden			*See* correct shipping name of applicable Poison B material for stowage, special handling, and special segregation requirements
	Grenade, empty, primed	Class C explosive		None	None	173.107	50 pounds	150 pounds	1,3	1,3	
	Grenade, hand or rifle, explosive *(with or without gas, smoke, or incendiary material)*	Class A explosive		Explosive A	None	173.56	Forbidden	Forbidden	1,2	5	No other cargo may be stowed in the same hold with these items
	Grenade, tear gas	Irritating material	NA2017	Irritant	None	173.385	Forbidden	75 pounds	1,2	1	
	Guanidine nitrate	Oxidizer	UN1467	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	Separate from nitro-compounds, chlorates, and acids
	Guanyl nitrosamino guanylidene. See Initiating explosive										
	Guanyl nitrosamino guanyltetrazene (dry). See Initiating explosive	Forbidden									
	Guanyl nitrosamino guanyl tetrazene. See Initiating explosive										
	Guided missile, without warhead. See Rocket motor, Class A explosive or Rocket motor, Class B explosive										
	Guided missile with warhead. See Rocket ammunition with explosive, illuminating, gas, incendiary, or smoke projectile										
	Guncotton. See High explosive										
E	Guthion. *See* Azinphos methyl										
E	Guthion mixture, liquid. *See* Azinphos methyl mixture, liquid										
	Hafnium metal, dry. *(See 173.214 Note 3)*	Flammable solid	UN1545	Flammable solid	None	173.214	Forbidden	75 pounds	1	5	
	Hafnium metal, wet	Flammable solid	UN1326	Flammable solid	None	173.214	Forbidden	150 pounds	1,2	5	
	Hair, wet	Flammable solid	NA1372	Flammable solid	None	173.172	Forbidden	Forbidden	1,2	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Hand signal device	Class C explosive		Explosive C	None	173.104	50 pounds	200 pounds	1,2	1,2	
W	Hay	ORM-C	UN1327	None	173.505	173.1005			1,2	1,2	Segregation same as for flammable solids. Stow away from animal or vegetable oils
W	Hay or straw *(loose, wet, or damp)*		UN1327								Forbidden for water shipment
E	Hazardous substance, liquid or solid, n.o.s	ORM-E	NA9188	None	None	173.1300	No limit	No limit	1,2	1,2	
	Hazardous waste, liquid or solid, n.o.s	ORM-E	NA9189	None	None	173.1300	Forbidden	550 pounds	1,2	1,2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Hazardous waste, meeting the definition of a hazard class other than ORM-E. See 172.101(c)(10)										
	Heater for refrigerator car, liquid fuel type (containing fuel)	Flammable liquid	NA1993	Flammable liquid	173.146		Forbidden	Forbidden	1,2	1	
	Helium	Nonflammable gas	UN1046	Nonflammable gas	173.306	173.302 173.314	150 pounds	300 pounds	1,2	1,2	
	Helium-oxygen mixture	Nonflammable gas	NA1980	Nonflammable gas	173.306	173.302	150 pounds	300 pounds	1,2	1,2	
E	Heptachlor (*RQ-1/0.454*)	ORM-E	NA2761	None	None	173.510	No limit	No limit	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
	Heptane	Flammable liquid	UN1206	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
W	*Hessian. See* Burlap cloth										
E	Hexachlorocyclopentadiene (*RQ-1/0.454*)	Corrosive material	UN2646	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
W	Hexachloroethane	ORM-A	NA9037	None	173.506	173.650			1,2	1,2	
	Hexadecyltrichlorosilane	Corrosive material	UN1781	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	Hexadiene	Flammable liquid	UN2458	Flammable liquid	None	173.119	Forbidden	10 gallons	1,2	5	
	Hexaethyl tetraphosphate and compressed gas mixture	Poison A	UN1612	Poison gas	None	173.334	Forbidden	Forbidden	1	5	Shade from radiant heat
	Hexaethyl tetraphosphate, liquid	Poison B	UN1611	Poison	None	173.358	Forbidden	1 quart	1	4	
	Hexaethyl tetraphosphate mixture, dry (*containing more than 2% hexaethyl tetraphosphate*)	Poison B	NA2783	Poison	None	173.377	Forbidden	200 pounds	1,2	5	
	Hexaethyl tetraphosphate mixture, dry (*containing not more than 2% hexaethyl tetraphosphate*)	Poison B	NA2783	Poison	173.377	173.377	50 pounds	200 pounds	1,2	4	
	Hexaethyl tetraphosphate mixture, liquid (*containing more than 25% hexaethyl tetraphosphate*)	Poison B	NA2783	Poison	None	173.359	Forbidden	1 quart	1,2	5	
	Hexaethyl tetraphosphate mixture, liquid (*containing not more than 25% hexaethyl tetraphosphate*)	Poison B	UN2783	Poison	173.359	173.359	1 quart	1 quart	1,2	4	
	Hexafluorophosphoric acid	Corrosive material	UN1782	Corrosive	None	173.275	Forbidden	1 gallon	1,2	1,2	
	Hexafluoropropylene	Nonflammable gas	UN1858	Nonflammable gas	173.306	173.302 173.314 173.315	150 pounds	300 pounds	1	4	
	Hexahydrate	Flammable liquid	UN2707	Flammable liquid	173.119	173.119	1 quart	10 gallons	1,2	1,2	
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *technically pure. See* Organic peroxide, solid, n.o.s.		UN2165								
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *not more than 52% with inert solid. See* Organic peroxide, solid, n.o.s.		UN2166								
	3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2167								
	Hexamethylenediamine, solid	Corrosive material	UN2280	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
	Hexamethylenediamine, solution	Corrosive material	UN1783	Corrosive	173.244	173.292	1 quart	10 gallons	1,2	1,2	
	Hexamethylenetetramine	Corrosive material	UN2493	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Hexamethylene triperoxide diamine (dry)	Forbidden									
	Hexamethylol benzene hexanitrate	Forbidden									
	Hexane	Flammable liquid	UN1208	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	4	
	2,2',4,4',6,6'-Hexanitro-3,3'-dihydroxyazoxybenzene (dry)	Forbidden									
	Hexanitrooxanilide	Forbidden									
	2,2',3,4',6-Hexanitrodiphenylamine	Forbidden									
	2,2',4,4',6,6'-Hexanitrodiphenylether	Forbidden									
	N,N'-Hexanitrodiphenylethylene dinitramine (dry)	Forbidden									
	Hexanitrodiphenyl urea	Forbidden									
	Hexanitroethane	Forbidden									
	Hexanitrooxanilide	Forbidden									
	Hexanoic acid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Hexyltrichlorosilane	Corrosive material	UN1784	Corrosive	None	173.280	Forbidden	10 gallons	1	1	Keep dry
	High explosive	Class A explosive		Explosive A	173.65	173.61 to 173.87	Forbidden	Forbidden	6	5	
	High explosive, liquid	Class A explosive		Explosive A	None	173.62	Forbidden	Forbidden	6	5	
	Hydraulic accumulator. *See* Accumulator, pressurized										
	Hydrazine, anhydrous	Flammable liquid	UN2029	Flammable liquid and Poison	None	173.276	Forbidden	5 pints	1	5	Segregation same as for corrosives
	Hydrazine, aqueous solution	Corrosive material	UN2030	Corrosive	None	173.276	Forbidden	5 pints	1	5	
	Hydrazine azide	Forbidden									
	Hydrazine chlorate	Forbidden									
	Hydrazine dicarbonic acid diazide	Forbidden									
	Hydrazine perchlorate	Forbidden									
	Hydrazine selenate	Forbidden									
	Hydriodic acid	Corrosive material	UN1787	Corrosive	173.244	173.245	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		(8)
					(a)	(b)	(a)	(b)	(a)	(b)	(c)
	Hydrobromic acid, more than 49% strength	Corrosive material	UN1788	Corrosive	None	173.262	Forbidden	Forbidden	1	1	Glass carboys not permitted on passenger vessel
	Hydrobromic acid, anhydrous. See Hydrogen bromide										
	Hydrobromic acid not more than 49% strength	Corrosive material	UN1788	Corrosive	173.244	173.262	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel
-	Hydrocarbon gas, liquefied	Flammable gas	UN1965	Flammable gas	173.306	173.304 173.314	Forbidden	300 pounds	1.2	1	
-	Hydrocarbon gas, nonliquefied	Flammable gas	UN1964	Flammable gas	173.306	173.302	Forbidden	300 pounds	1.2	1	
E	Hydrochloric acid (RQ-5000/2270)	Corrosive material	UN1789	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel
E	Hydrochloric acid, anhydrous. See Hydrogen chloride										
E	Hydrochloric acid mixture (RQ-5000/2270)	Corrosive material	NA1789	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel
E	Hydrochloric acid solution, inhibited (RQ-5000/2270)	Corrosive material	UN1789	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel
E	Hydrocyanic acid (prussic) solution (5% or more hydrocyanic acid) (RQ-10/4.54)	Poison A	UN1613	Poison gas and Flammable gas	None	173.332	Forbidden	Forbidden	1	5	Shade from radiant heat. Aqueous solutions containing more than 20 percent hydrocyanic acid are not permitted in transportation by water. Segregation same as for flammable gases.
E	Hydrocyanic acid, liquefied (RQ-10/4.54)	Poison A	NA1051	Poison gas and Flammable gas	None	173.332	Forbidden	Forbidden	1	5	Segregation same as for flammable gases.
	Hydrocyanic acid (prussic), unstabilized	Forbidden									
- E	Hydrocyanic acid solution, less than 5% hydrocyanic acid (RQ-10/4.54)	Poison B	UN1613	Poison	None	173.331	Forbidden	25 pounds	1	5	Shade from radiant heat.
E	Hydrofluoric acid, anhydrous. See Hydrogen fluoride										
E	Hydrofluoric acid solution (RQ-5000/2270)	Corrosive material	UN1790	Corrosive	173.244	173.264	1 quart	1 gallon	1	4	
E	Hydrofluoric and sulfuric acid mixture (RQ-5000/2270)	Corrosive material	UN1786	Corrosive	None	173.290	Forbidden	1 gallon	1	5	
	Hydrofluoroboric acid. See Fluoboric acid										
	Hydrofluorosilicic acid	Corrosive material	NA1778	Corrosive	None	173.265	1 quart	1 gallon	1.2	1.2	
-	Hydrogen	Flammable gas	UN1049	Flammable gas	173.304	173.302 173.314	Forbidden	300 pounds	1.2	5	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
E	Hydrogen chloride (RQ-5000/2270)	Nonflammable gas	UN1050	Nonflammable gas	173.306	173.304	Forbidden	300 pounds	1	4	
E	Hydrogen fluoride (RQ-5000/2270)	Corrosive material	UN1052	Corrosive	None	173.264	Forbidden	110 pounds	1	5	Segregation same as for nonflammable gases.
	Hydrogen iodide solution. See Hydriodic acid										
-	Hydrogen, liquefied	Flammable gas	UN1966	Flammable gas	None	173.316	Forbidden	Forbidden			Forbidden
	Hydrogen peroxide solution (40% to 52% peroxide)	Oxidizer	UN2014	Oxidizer	173.244	173.266	Forbidden	Forbidden	1	4	Shade from radiant heat. Separate from permanganates. Keep away from powdered metals.
	Hydrogen peroxide solution (8% to 40% peroxide)	Oxidizer	UN2014	Oxidizer	173.244	173.266	1 quart	1 gallon	1.2	1	Shade from radiant heat. Separate from permanganates. Keep away from powdered metals.
	Hydrogen peroxide solution (over 52% peroxide)	Oxidizer	UN2015	Oxidizer and Corrosive	None	173.266	Forbidden	Forbidden	1	5	Shade from radiant heat. Separate from permanganates. Keep away from powdered metals. Concentrations greater than 60% hydrogen peroxide not permitted on any vessel except under conditions approved by the Department.
+	Hydrogen selenide	Flammable gas	UN2202	Flammable gas and Poison	None	173.328	Forbidden	Forbidden	1	5	
E	Hydrogen sulfate. See Sulfuric acid										
+ E	Hydrogen sulfide (RQ-100/45.4)	Flammable gas	UN1053	Flammable gas and Poison	None	173.304 173.314	Forbidden	300 pounds	1	5	
	Hydrosilicofluoric acid. See Hydrofluorosilicic acid										
	Hydroxyl amine iodide	Forbidden									
E	Hypochlorite solution containing more than 7% available chlorine by weight (RQ-100/45.4)	Corrosive material	NA1791	Corrosive	173.244	173.277	1 quart	4 gallons	1.2	1	Glass carboys in hampers not permitted under deck
EA	Hypochlorite solution containing not more than 7% available chlorine by weight (RQ-100/45.4)	ORM-B	NA1791	None	173.505	173.510	No limit	No limit			
	Hyponitrous acid	Forbidden									
	Igniter	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1.3	1.3	
	Igniter cord	Class C explosive		Explosive C	None	173.100	50 pounds	150 pounds	1.3	1.3	
	Igniter fuse, metal clad	Class C explosive		Explosive C	None	173.106	50 pounds	150 pounds	1.3	1.3	
	Igniter, jet thrust (jato)	Class A explosive		Explosive A	None	173.79	Forbidden	Forbidden	6	5	
	Igniter, jet thrust (jato)	Class B explosive		Explosive B	None	173.92	Forbidden	550 pounds	1.3	5	
	Igniter, rocket motor	Class A explosive		Explosive A	None	173.79	Forbidden	Forbidden	6	5	
	Igniter, rocket motor	Class B explosive		Explosive B	None	173.92	Forbidden	550 pounds	1.3	5	
	Illuminating projectile. See Fireworks, special										
	Iminobispropylamine	Corrosive material	UN2269	Corrosive	173.244	173.245	1 quart	10 gallons	1.2	1.2	

(1)	(2)	(3)	(3A)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or rail car	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	Infectious substance, human, n.o.s. *See* Etiologic Agent n.o.s.										
	Initiating explosive (*diazodinitrophenol*)	Class A explosive		Explosive A	None	173.70	Forbidden	Forbidden	6	5	
	Initiating explosive (*fulminate of mercury*)	Class A explosive		Explosive A	None	173.71	Forbidden	Forbidden	6	5	
	Initiating explosive (*guanyl nitrosamino guanylidene hydrazine*)	Class A explosive		Explosive A	None	173.72	Forbidden	Forbidden	6	5	
	Initiating explosive (*lead azide, dextrinated type only*)	Class A explosive		Explosive A	None	173.73	Forbidden	Forbidden	6	5	
	Initiating explosive (*lead mononitroresorcinate*)	Class A explosive		Explosive A	None	173.70	Forbidden	Forbidden	6	5	
	Initiating explosive (*lead styphnate (lead trinitroresorcinate)*)	Class A explosive		Explosive A	None	173.74	Forbidden	Forbidden	6	5	
	Initiating explosive (*nitro mannite*)	Class A explosive		Explosive A	None	173.75	Forbidden	Forbidden	6	5	
	Initiating explosive (*nitrosoguanidine*)	Class A explosive		Explosive A	None	173.76	Forbidden	Forbidden	6	5	
	Initiating explosive (*pentaerythrite tetranitrate*)	Class A explosive		Explosive A	None	173.77	Forbidden	Forbidden	6	5	
	Initiating explosive (*tetrazene (guanyl nitrosamine guanyl tetrazene)*)	Class A explosive		Explosive A	None	173.78	Forbidden	Forbidden	6	5	
	Initiating explosives (dry)	Forbidden									
	Ink	Combustible liquid	UN2667	None	173.118a	None	No limit	No limit	1,2	1,2	
	Ink	Flammable liquid	UN1210	Flammable liquid	173.118	173.144	1 quart	10 gallons	1,2	1	
	Inositol hexanitrate (dry)	Forbidden									
	Insecticide, dry, n.o.s.	Poison B	NA2588	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Insecticide, liquefied gas (*containing no Poison A or B material*)	Nonflammable gas	NA1968	Nonflammable gas	173.306	173.304	150 pounds	300 pounds	1,2	1,2	
	Insecticide, liquefied gas, containing Poison A material *or* Poison B material	Poison A	NA1967	Poison gas	None	173.326 173.334	Forbidden	Forbidden	1	5	Shade from radiant heat
	Insecticide, liquid, n.o.s.	Combustible liquid	NA1993	None	173.118a	None	No limit	No limit	1,2	1,2	
	Insecticide, liquid, n.o.s.	Flammable liquid	NA1993	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Insecticide, liquid, n.o.s.	Poison B	NA2902	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
W	Insulation tape (*cellulose plastic type*). *See* [illegible] material										
	[illegible]										
	Iodine pentafluoride	Oxidizer	UN2495	Oxidizer and Poison	None	173.246	Forbidden	100 pounds	1	1	Keep dry
	Iodoxy compounds (dry)	Forbidden									
	Iridium nitropentamine iridium nitrate	Forbidden									
E	Iron chloride, solid. *See* Ferric chloride, solid										
	Iron mass *or* sponge, *not properly oxidized*	Flammable solid	NA1383	Flammable solid	None	173.174	Forbidden	Forbidden	1,2	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Iron mass *or* sponge, spent	Flammable solid	UN1376	Flammable solid	None	173.174	Forbidden	Forbidden	1,2	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides
	Iron oxide, spent. *See* Iron mass *or* sponge, spent										
E	Iron sesquichloride, solid. *See* Ferric chloride										
	Irritating agent, n.o.s.	Irritating material	NA1693	Irritant	None	173.382	Forbidden	75 pounds	1	1	Stow away from living quarters
	Isobutane *or* Liquefied petroleum gas. *See* Liquefied petroleum gas										
E	Isobutyl acetate (*RQ-5000/2270*)	Flammable liquid	UN1213	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E	Isobutylamine (*RQ-1000/454*)	Flammable liquid	UN1214	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E	Isobutylene *or* Liquefied petroleum gas. *See* Liquefied petroleum gas										
E	Isobutyric acid (*RQ-5000/2270*)	Corrosive material	UN2529	C	173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Isobutyric anhydride	Corrosive material	UN2530		173.244	173.245	1 quart	10 gallons	1,2	1,2	
	Isononanyl peroxide, *technically pure or* Isononanyl peroxide, *in solution. See* Organic peroxide, liquid *or* solution, n.o.s.		UN[illegible]								
	Isooctane	Flammable liquid	UN1262	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Isooctene	Flammable liquid	UN1216	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
	Isopentane	Flammable liquid	UN1265	Flammable liquid	173.118	173.119	Forbidden	10 gallons	1,3	4	
	Isopentanoic acid	Corrosive material	NA1760	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
E	Isoprene (*RQ-1000/454*)	Flammable liquid	UN1218	Flammable liquid	173.118	173.119	Forbidden	10 gallons	1,3	4	
	Isopropanol	Flammable liquid	UN1219	Flammable liquid	173.118	173.125	1 quart	10 gallons	1,2	1	
E	Isopropanolamine dodecylbenzenesulfonate (*RQ-1000/454*)	ORM-E	NA9127	None	None	173.510	No limit	No limit	1,2	1,2	
	Isopropyl acetate	Flammable liquid	UN1220	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Isopropyl acid phosphate, solid	Corrosive material	UN1793	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
	Isopropyl alcohol. *See* Isopropanol										
	Isopropylamine	Flammable liquid	UN1221	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	

(1) E/A/W	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(3A) Identification number	(4) Labels required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(c) Other requirements
	Isopropyl mercaptan	Flammable liquid	UN2703	Flammable liquid	None	173.141	Forbidden	10 gallons	1,3	5	
	Isopropyl nitrate	Flammable liquid	UN1222	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Isopropyl percarbonate, stabilized	Organic peroxide	NA2134	Organic peroxide	None	173.223	Forbidden	Forbidden	5	5	
	Isopropyl percarbonate, unstabilized	Organic peroxide	NA2133	Organic peroxide	None	173.218	Forbidden	Forbidden	5	5	
	Isopropyl peroxydicarbonate, *technically pure. See* Isopropyl percarbonate, unstabilized		UN2133								
	Isopropyl peroxydicarbonate, *not more than 52% in solution. See* Organic peroxide, liquid or solution, n.o.s.		UN2134								
	Isopropyl phosphonic acid, solid. *See* Isopropyl acid phosphate, solid										
	Isothiocyanic acid (polymerization hazard)	Forbidden									
	Jet thrust igniter. *See* Igniter, jet thrust										
	Jet thrust unit (*jato*)	Class A explosive		Explosive A	None	173.79	Forbidden	Forbidden	6	5	
	Jet thrust unit (*jato*)	Class B explosive		Explosive B	None	173.92	Forbidden	550 pounds	1,3	5	
W	*Jute. See* Fibers										
W	*Kapok. See* Fibers										
E	Kelthane (*RQ-5000/2270*)	ORM-E	NA2761	None	None	173.510	No limit	No limit	1,2	1,2	
E	Kepone (*RQ-1/0.454*)	ORM-E	NA2761	None	None	173.510	No limit	No limit	1,2	1,2	
	Kerosene	Combustible liquid	UN1223	None	173.118a	None	No limit	No limit	1,2	1,2	
	Lacquer. *See* Paint, Enamel, Lacquer, Stain, etc.										
	Lacquer base *or* Lacquer chips, plastic (*wet with alcohol or solvent*)	Flammable liquid	UN1263	Flammable liquid	173.118	173.127	1 quart	25 pounds	1,2	1	
	Lacquer base, *or* Lacquer chips, dry	Flammable solid	NA2557	Flammable solid	173.153	173.175	25 pounds	100 pounds	1	1	
	Lacquer base, liquid. *See* Paint, Enamel, Lacquer, Stain, etc.										
	Lacquer removing, reducing, or thinning compound. *See* Compound, lacquer, paint, or varnish, removing, reducing or thinning										

	Lauroyl peroxide, *not more than 42% powder dispersible in water. See* Organic peroxide, liquid or solution, n.o.s.										
	Lauroyl peroxide, *technically pure. See* Lauroyl peroxide		UN2124								
E	Lead acetate (*RQ-5000/2270*)	ORM-E	UN1616	None	None	173.510	No limit	No limit	1,2	1,2	
E	Lead arsenate, solid (*RQ-5000/2270*)	Poison B	UN1617	Poison	173.364	173.367	50 pounds	200 pounds	1,2	1,2	
	Lead arsenite, solid	Poison B	UN1618	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
	Lead azide. See Initiating explosive										
	Lead azide (dry)	Forbidden									
EA	Lead chloride (*RQ-5000/2270*)	ORM-B	NA2291	None	173.505	173.600	25 pounds	100 pounds	1,2	1,2	
	Lead cyanide	Poison B	UN1620	Poison	173.370		25 pounds	No limit	1,2	1,2	Stow away from acids
W	Lead dross (*containing 3% or more free acid*)	ORM-C	NA1794	None	173.505	173.1010			1,2	1,2	Segregation same as for corrosive materials
EA	Lead fluoborate (*RQ-5000/2270*)	ORM-B	NA2291	None	173.505	173.510	25 pounds	100 pounds	1,2	1,2	
EA	Lead fluoride (*RQ-1000/454*)	ORM-B	NA2811	None	173.505	173.510	25 pounds	100 pounds	1,2	1,2	
E	Lead iodide (*RQ-5000/2270*)	ORM-E	NA2811	None	None	173.510	No limit	No limit	1,2	1,2	
	Lead mononitroresorcinate. See Initiating explosive										
	Lead mononitroresorcinate (dry)	Forbidden									
E	Lead nitrate (*RQ-5000/2270*)	Oxidizer	UN1469	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs
	Lead peroxide	Oxidizer	UN1872	Oxidizer	173.153	173.154	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs
	Lead picrate (dry)	Forbidden									
W	Lead scrap. *See* Lead dross										
E	Lead stearate (*RQ-5000/2270*)	ORM-E	NA2811	None	None	173.510	No limit	No limit	1,2	1,2	
	Lead styphnate (dry)	Forbidden									
	Lead styphnate (lead trinitroresorcinate). See Initiating explosive										
E	Lead sulfate (RQ-5000/2270)	ORM-E	NA2291	None	None	173.510	No limit	No limit	1,2	1,2	
E	Lead sulfate, solid (*containing more than 3% free acid*) (*RQ-5000/2270*)	Corrosive material	UN1794	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
E	Lead sulfide (*RQ-5000/2270*)	ORM-E	NA2291	None	None	173.510	No limit	No limit	1,2	1,2	
E	Lead thiocyanate (*RQ-5000/2270*)	ORM-E	NA2291	None	None	173.510	No limit	No limit	1,2	1,2	
	Leather bleach *or* dressing	Flammable liquid	NA1142	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Leather bleach *or* dressing	Combustible liquid	NA1142	None	173.118a	None	No limit	No limit	1,2	1,2	
	Life rafts, inflatable	ORM-C		None	None	173.906	1 per inaccessible cargo compartment	No limit	1,2	1,2	
	Lighter fluid	Flammable liquid	UN1226	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
	Lime-nitrogen. See Calcium cyanamide, not hydrated										
	Lime, unslaked. *See* Calcium oxide										
EA	Lindane (*RQ-1/.454*)	ORM-A	NA2761	None	173.505	173.510	No limit	No limit	1,2	1,2	
+	Liquefied hydrocarbon gas. *See* Hydrocarbon gas, liquefied										
	Liquefied nonflammable gas (*charged with nitrogen, carbon dioxide, or air*)	Nonflammable gas	NA1058	Nonflammable gas	173.306	173.304	300 pounds	300 pounds	1,2	1,2	
+	Liquefied petroleum gas	Flammable gas	UN1075	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	1	