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MATERIAL SAFETY DATA SHEE

REQUIREMENTS FOR REPORTING HAZARDOUS MATERIALS
SAFETY AND HEALTH REGULATIONS
FOR SHIP REPAIRING, SHIPBUILDING, SHIPBREAKING



U.S. DEPARTMENT OF LABOR
WORKPLACE STANDARDS ADMINISTRATION

PREFACE

This booklet is intended to help employers in meeting the requirements of Section 57, paragraphs (b) and (c), Parts 1501, 1502, and 1503 of the Safety and Health Regulations, promulgated under Public Law 85-742, for Ship Repairing, Shipbuilding, and Shipbreaking, respectively. Included is Section 57 in its entirety, and the definition of a "Hazardous material" as covered in Section 2, in each of these Parts.

Also included is a reproduction of Form LSB OOS-4, an explanation of terms used on the form, and instructions for completing it. For those who may wish to print forms particularly suited to a single type of product, and which meet the approval of the Bureau of Labor Standards, the term "essentially similar"

CONTENTS

PREFACE

INSTRUCTIONS AND EXPLANATION OF TERMS *for preparation of "Material Safety Data Sheet"* 1

APPENDIX A *Amendments to regulations* 17

APPENDIX B *Glossary of terms for Hazardous Materials* 29

DEFINITION OF A HAZARDOUS MATERIAL

hazardous material has one or more of the following
haracteristics: (1) has a flashpoint below 140°F., closed
ıp, or subject to spontaneous heating; (2) has a
ıreshold limit value below 500 ppm for gases and vapors,
elow 500 Mg/M³ for fumes, and below 25 mppcf for
usts; (3) a single dose oral LD_{50} below 500 mg/kg; (4)
subject to polymerization with the release of large
nounts of energy; (5) is a strong oxidizing or reducing
gent; (6) causes first degree burns to skin
short time exposure, or is systemically
xic by skin contact; or (7) in the course of normal
erations, may produce dusts, gases, fumes, vapors,
ists, or smokes which have one or more of the
ave characteristics.

SECTION I

Manufacturer's Name and Address
Self-Explanatory. Give source of data if other than manufacturer.

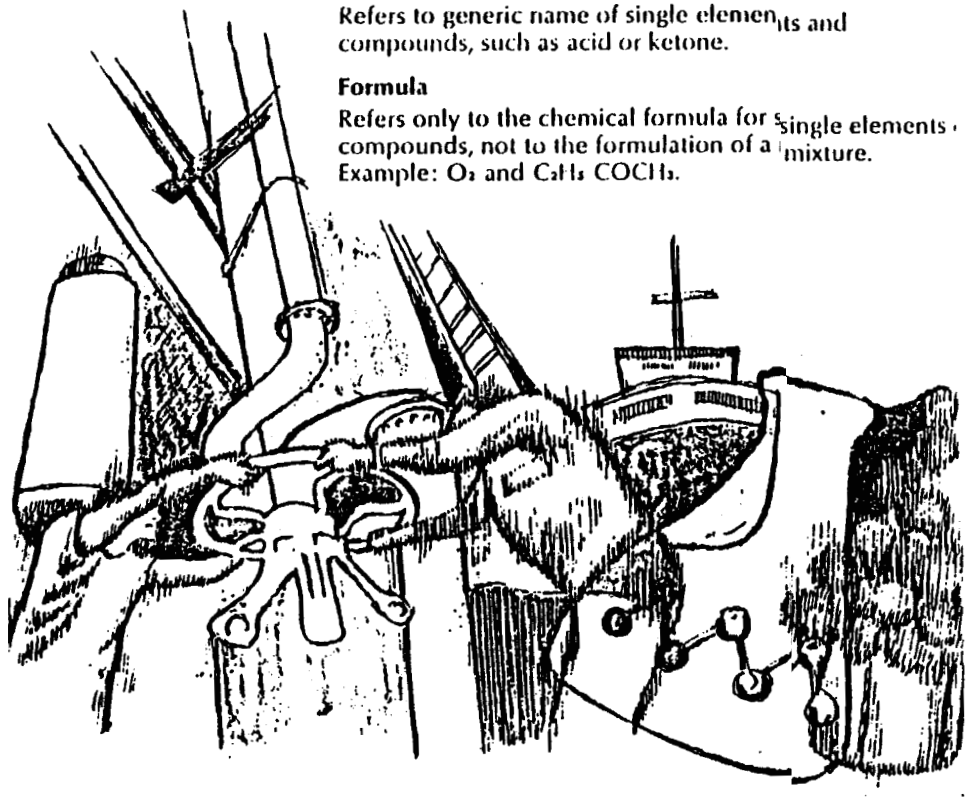
Emergency Telephone Number
To obtain further information in the event of an emergency involving the material.

Chemical Name and Synonyms
Refers only to products consisting of a single element or compound, such as oxygen or methyl ethyl ketone.

Trade Name and Synonyms
If any.

Chemical Family
Refers to generic name of single elements and compounds, such as acid or ketone.

Formula
Refers only to the chemical formula for single elements or compounds, not to the formulation of a mixture. Example: O_2 and $C_2H_5COCH_3$.



SECTION II

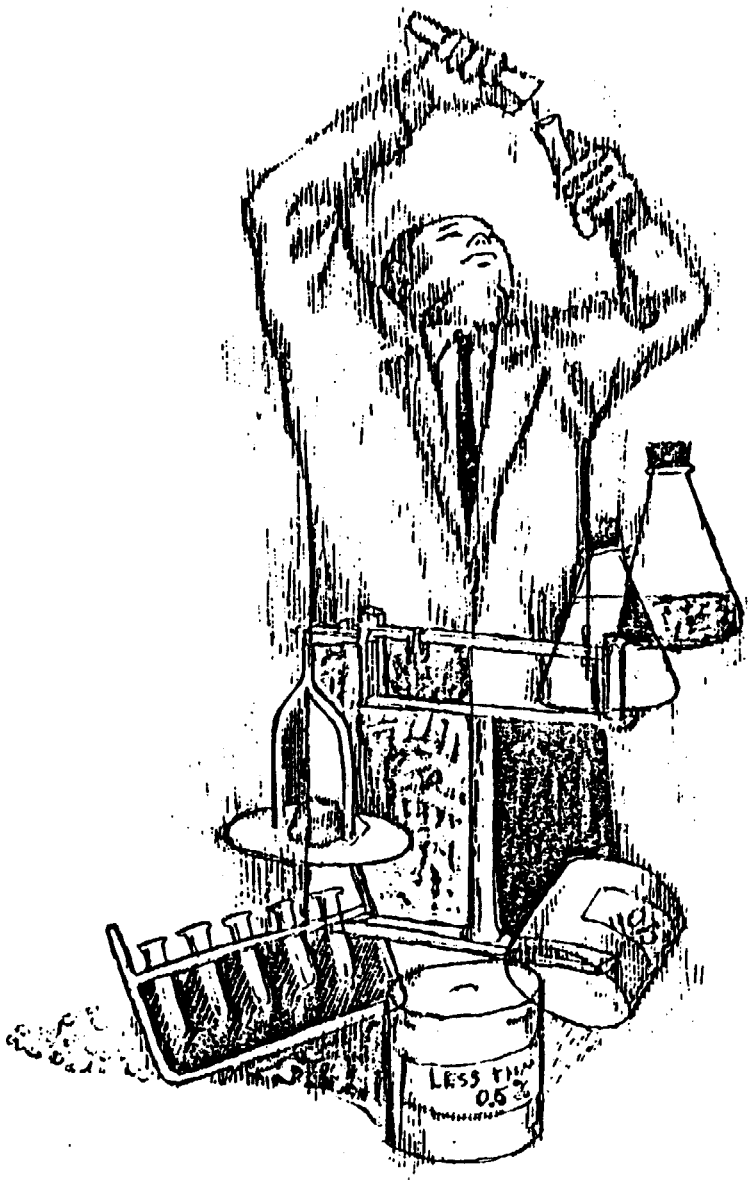
HAZARDOUS INGREDIENTS

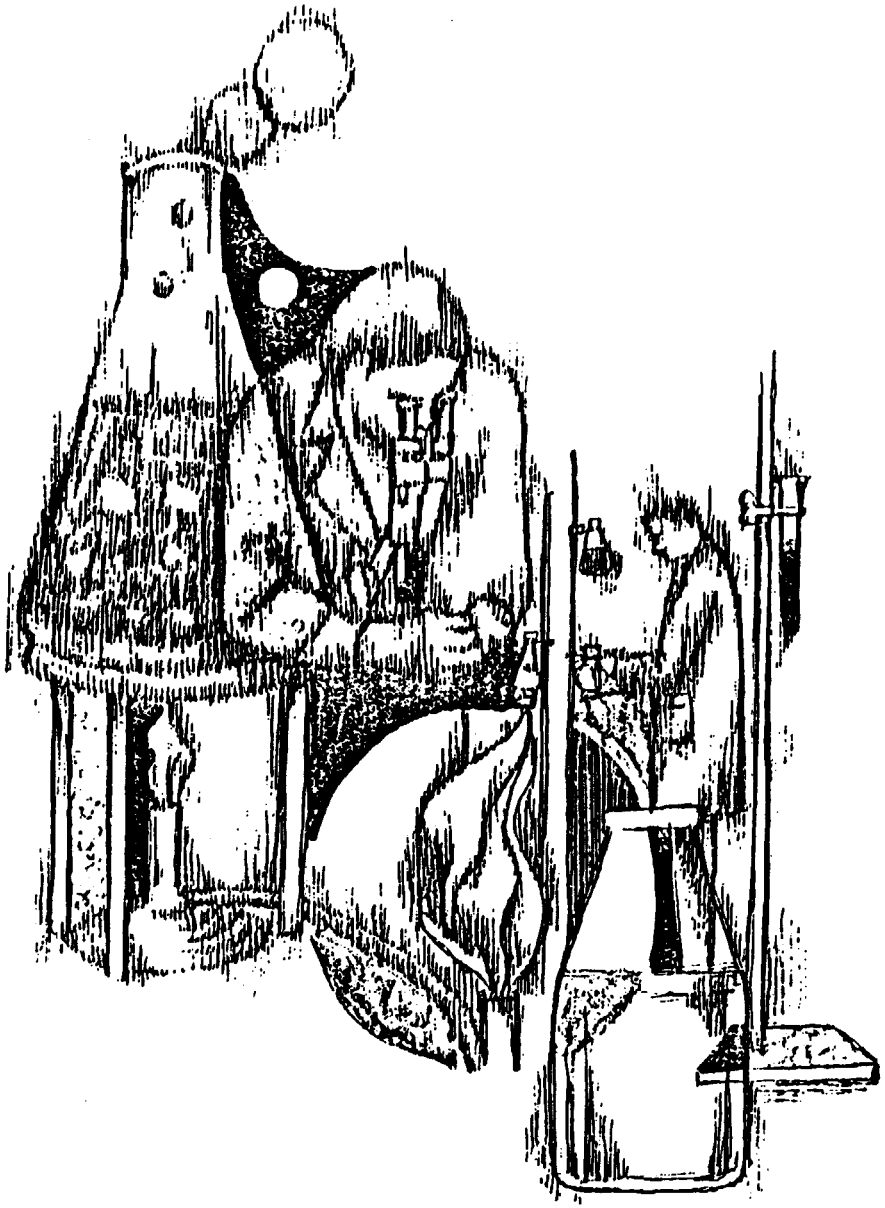
A hazardous ingredient is a hazardous material in a mixture in sufficient concentration to produce enough flammable vapor or gas to ignite or to produce acute or chronic adverse effects in doses which could result from normal use or predictable misuse of the mixture containing it. Ingredients of a hazardous nature shall be noted by chemical name in one of the three divisions of Section II, viz., Paints, Preservatives, and Solvents; Alloys and Metallic Coatings; and Hazardous Mixtures of Other Liquids, Solids, or Gases. The listing of ingredients in the first division is self-explanatory. Metallic coatings listed in the second division refer to coatings such as plating, cladding, and metallizing; and filler metal is any metal added in making a brazed, soldered, or welded joint. Filler metals shall be considered with the ingredients of rod coatings and core fluxes as single mixtures. The third division refers to other hazardous mixtures, such as abrasive blasting materials.

The approximate percentage of each hazardous ingredient by weight or volume shall be shown to the nearest 5 percent. The percentage of any substance constituting less than 5 percent may be indicated as such. For mixtures, such as filler metals and their coatings and core fluxes, in which the hazardous ingredients constitute very small proportions of the mixture, the hazardous ingredients shall be stated to the nearest 0.5 percent, and ingredients constituting less than 0.5 percent may be indicated as such.

The threshold limit value (TLV) for each hazardous ingredient in a mixture will be entered in the column provided, in accordance with instructions given in Section V.

If more space is needed in the first or second division, use the lines provided in the third division. Normally this space will be used for mixtures not falling in the other divisions. In addition, addenda sheets may be added to the form.





SECTION III

PHYSICAL DATA

Boiling Point

Refers to the temperature at which the liquid boils, in degrees F., at a pressure of 760 mm Hg. For mixtures, a boiling range is acceptable.

Vapor Pressure

Refers to pressure of saturated vapor above the liquid in mm of Hg, at 20°C.

Vapor Density

Refers to the relative density or weight of a vapor or gas (with no air present) compared with an equal volume of air. Values should be given in the ambient temperature range of 60°-90°F. to facilitate field usage.

Solubility in Water

The following terms shall be used to describe the solubility of the product by weight in distilled water at 50°F.:

Negligible	less than 0.1 percen
Slight	0.1-1 percent
Moderate	1-10 percent
Appreciable	more than 10 percei
Complete	in all proportions

Specific Gravity

Refers to the ratio of the weight of a volume of material to the weight of an equal volume of water at 39.2°F. This determines whether the material floats or sinks in water.

Percentage Volatile by Volume

Refers to the percentage of the liquid or solid by volume that evaporates at the ambient temperature of 70°F. This applies to solids such as Napthalene.

Evaporation Rate

Refers to whether the rate is greater or less than 1. Either Butyl Acetate or Ether may be taken as unity. Insert the name of whichever is used.

Appearance and Odor

Give a brief description, e.g., viscous, colorless liquid with aromatic odor.

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

Flash Point

Refers to the temperature in degrees F., at which a liquid will give off enough flammable vapor to ignite. The closed cup values shall be given. When multi-component paint systems are used and mixed in the field, the flash point of the individual components shall be noted.

Flammable or Explosive Limits

Refers to the range of gas or vapor concentrations (percent by volume in air) which will burn or explode if an ignition source is present. LEL means the lower explosive limit, and UEL means the upper explosive limit. Knowledge of the LEL will aid in determining the volume of ventilation needed for an enclosed space to prevent fires and explosions.

Extinguishing Media

List the firefighting media suitable for use on the burning material. For certain specific chemicals, special formulations, in addition to the standard agents, are available for extinguishing fires. These should be indicated by generic name. The standard firefighting agents are water fog, foam, alcohol foam, CO_2, and dry chemical.

Special Firefighting Procedures

If water is unsuitable, specify the firefighting media to be used. Also list any necessary personal protective equipment.

Unusual Fire and Explosion Hazards

Specify such hazards and/or any special conditions that govern them.



HEALTH HAZARD DATA

SECTION V

Threshold Limit Value

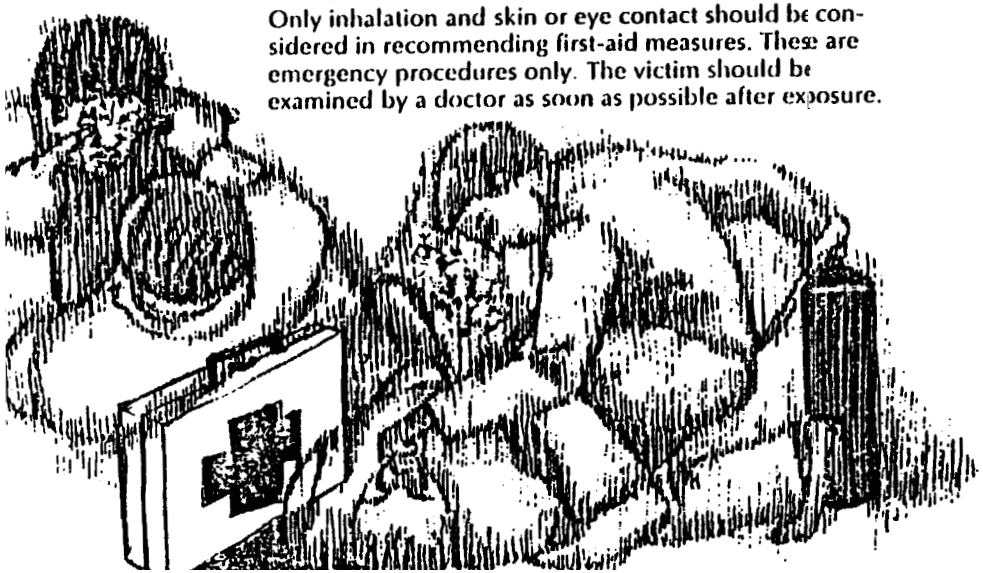
Threshold limit value (TLV) refers to current figures of the American Conference of Governmental Industrial Hygienists. The TLV for single elements and compounds shall be entered here. For mixtures, the threshold limit value for each significant ingredient shall be noted in the column provided in Section II of the form. (See Section II above for explanation.) Express these values in millions of particles per cubic foot of air (mppcf), or in milligrams of particulate per cubic meter of air (Mg/M³) for dust; and in milligrams of particulate per cubic meter of air (Mg/M³), or in parts per million parts of air by volume (ppm) for gases, vapors, mists, fumes, and all other contaminants except dusts. State the units in which the TLV is expressed.

Effects of Overexposure

Describe most common sensations that exposed person will feel, and [illegible] appearance.

Emergency and First-Aid Procedures

Only inhalation and skin or eye contact should be considered in recommending first-aid measures. These are emergency procedures only. The victim should be examined by a doctor as soon as possible after exposure.



REACTIVITY DATA

SECTION VI

Stability

Indicate, by cross or check, whether stable or unstable under reasonably foreseeable conditions of storage, use, or misuse. If unstable, list those conditions which may cause a dangerous reaction. Examples: Shock from dropping; temperature above 150°F.

Incompatibility

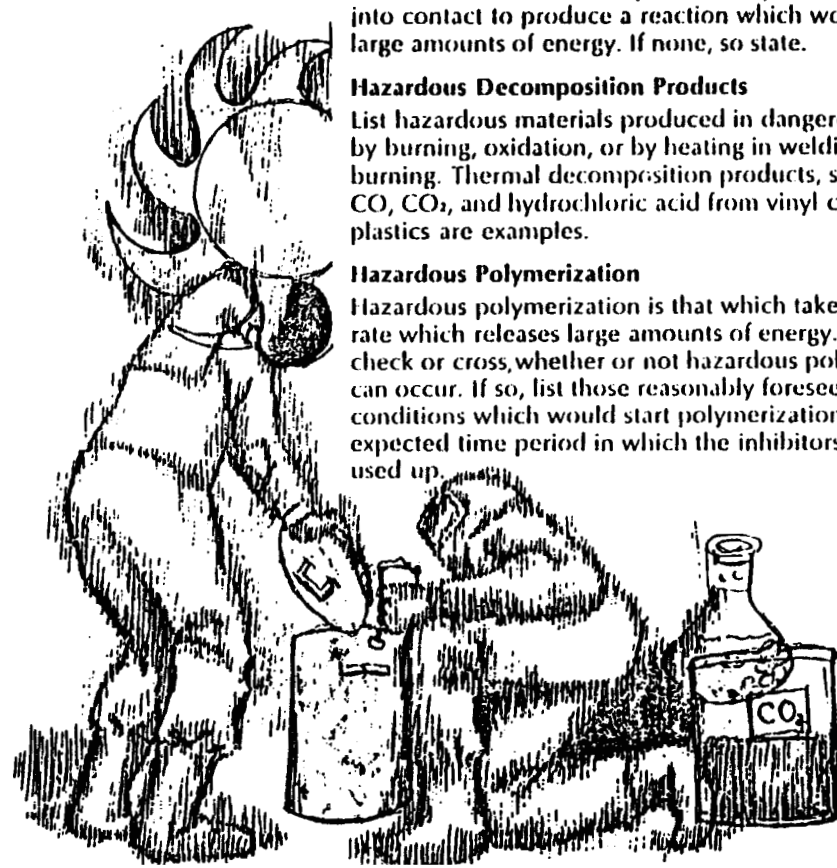
Provide information on such common materials and contaminants with which the product may reasonably come into contact to produce a reaction which would release large amounts of energy. If none, so state.

Hazardous Decomposition Products

List hazardous materials produced in dangerous amounts by burning, oxidation, or by heating in welding or burning. Thermal decomposition products, such as CO, CO_2, and hydrochloric acid from vinyl chloride plastics are examples.

Hazardous Polymerization

Hazardous polymerization is that which takes place at a rate which releases large amounts of energy. Indicate by check or cross whether or not hazardous polymerization can occur. If so, list those reasonably foreseeable storage conditions which would start polymerization. Include the expected time period in which the inhibitors may be used up.



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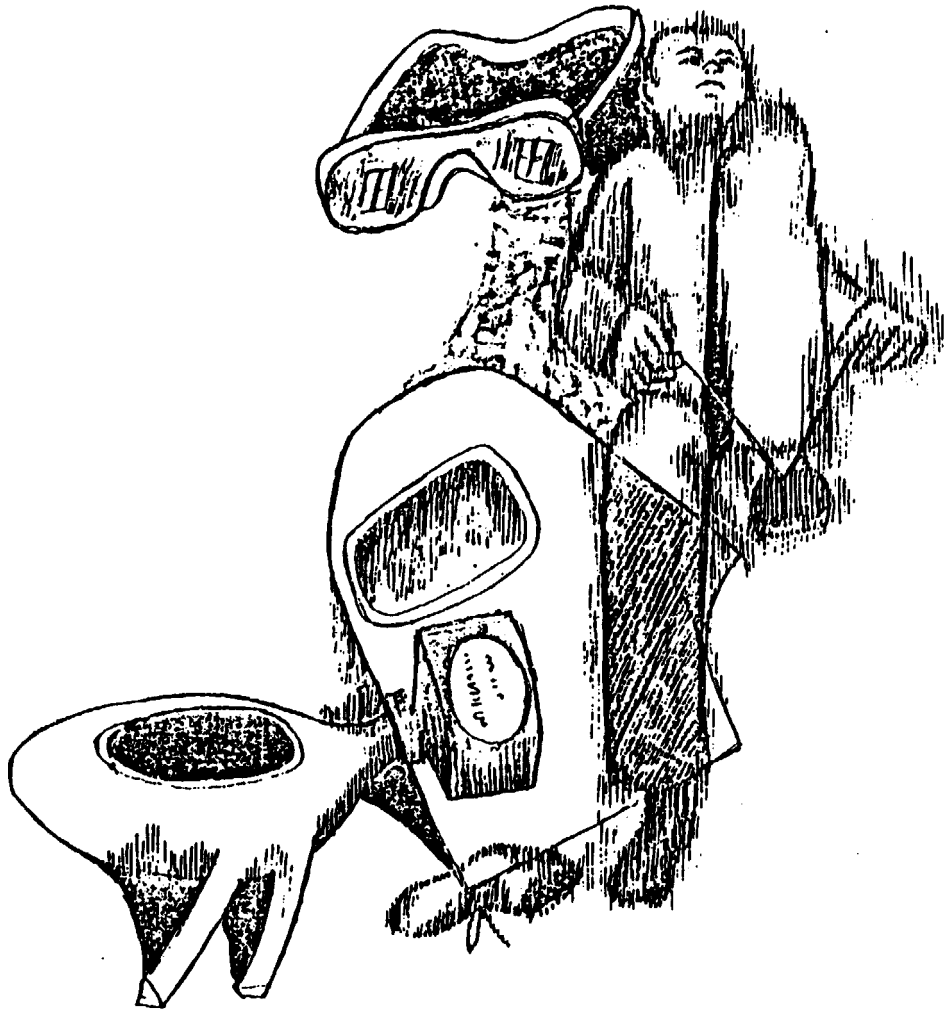
SECTION VII SPILL OR LEAK PROCEDURES

Indicate any applicable precautions as: avoiding breathing gases and vapors; contact with liquids and solids; removing sources of ignition; any special equipment used for cleaning up, such as glass or plastic scoops; and disposal of spilled solids or liquids, such as flushing with water, returning material to container, burning, etc.



SECTION VIII SPECIAL PROTECTION INFORMATION

Indicate the type of personal protective equipment and ventilation to be used and the precautions to be taken when using the product for its intended purpose, such as elimination of ignition sources.



SPECIAL PRECAUTIONS

SECTION **IX**

Indicate any special precautions to be taken, such as in handling or storing, to avoid reaction hazards. When applicable, indicate safe storage life of product in relation to reactivity. Also indicate any other general precautions to be taken.



APPENDIX A

TITLE 29 — LABOR

CHAPTER XIII — BUREAU OF LABOR STANDARDS, DEPARTMENT OF LABOR

PART 1501 — SAFETY AND HEALTH REGULATIONS FOR SHIP REPAIRING

PART 1502 — SAFETY AND HEALTH REGULATIONS FOR SHIPBUILDING

PART 1503 — SAFETY AND HEALTH REGULATIONS FOR SHIPBREAKING

HAZARDOUS MATERIALS

On August 23, 1968, a proposal was published at 33 F.R. 12008 to amend 29 CFR Parts 1501, 1502, and 1503 to require certain employers to obtain specified information in order to ascertain potential hazards in the use of certain materials. Interested persons were given the opportunity to participate in the rule making through submission of written data, views, and comments regarding the proposal. After consideration of all relevant matter submitted and pursuant to Section 41 of the Longshoremen's and Harbor Workers' Compensation Act (33 U.S.C. 941) 29 CFR Parts 1501, 1502, and 1503 are hereby amended as follows:

1. Section 1501.2 is amended by adding thereto an additional paragraph (s), to read as follows:

§ 1501.2 **Definitions.**

* * * * *

(s) For purposes of § 1501.57, the term "hazardous material" means a material which has one or more of the following characteristics: (1) has a flash point below 140°F., closed cup, or is subject to spontaneous heating; (2) has a threshold limit value below 500 ppm in the case of a gas or vapor, below 500 Mg/M³ for fumes, and below 25 mppcf in case of a dust; (3) has a single dose oral LD_{50} below 500 mg/kg; (4) is subject to polymerization with the release of large amounts of energy; (5) is a strong oxidizing or reducing agent; (6) causes first degree burns to skin in short time exposure, or is systemically toxic by skin contact; or (7) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes which have one or more of the above characteristics.

2. Section 1501.57 is revised to read as follows:

§ 1501.57 **Health and sanitation.**

(a) No chemical product, such as a solvent or preservative; no structural material, such as cadmium or zinc coated steel, or plastic material; and no process material, such as welding filler metal, which is a hazardous material within the meaning of § 1501.2 (s), shall be used until the employer has ascertained the potential fire, toxic, or reactivity hazards which are likely to be encountered in the handling, application, or utilization of such a material

(b) In order to ascertain the hazards, as required by paragraph (a) of this section, the employer shall obtain the following items of information which are applicable to a specific product or material to be used.

(1) The name, address,and telephone number of the source of information specified in this paragraph, preferably those of the manufacturer of the product or material

(2) The trade name and synonyms for a mixture of chemicals, a basic structural material, or for a process material; and the chemical name and synonyms, chemical family and formula for a single chemical.

(3) Chemical names of hazardous ingredients, including, but not limited to, those in mixtures, such as those in: (i) Paints, preservatives and solvents; (ii) alloys, metallic coatings, filler metals and their coatings or core fluxes; and (iii) other liquids, solids,or gases (e.g., abrasive materials).

(4) An indication of the percentage, by weight or volume, which each ingredient of a mixture bears to the whole mixture, and of the threshold limit value of each ingredient, in appropriate units.

(5) Physical data about a single chemical or a mixture of chemicals, including boiling point, in degrees Fahrenheit, vapor pressure, in millimeters of mercury; vapor density of gas or vapor (air = 1); solubility in water, in percent by weight; specific gravity of material (water = 1); percentage volatile, by volume, at 70 degrees Fahrenheit; evaporation rate for liquids (either butyl acetate or ether may be taken as 1); and appearance and odor.

(6) Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flash point, in degrees Fahrenheit; flammable limits, in percent by volume in air; suitable extinguishing media or agents; special fire fighting procedures; and unusual fire and explosion hazard information.

(7) Health hazard data, including threshold limit value, in appropriate units, for a single hazardous chemical or for the individual hazardous ingredients of a mixture, as appropriate; effects of over-exposure; and emergency an first-aid procedures.

(8) Reactivity data, including stability, incompatibility, hazardous decomposition products, and hazardous polymerization.

(9) Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.

(10) Special protection information, including use of personal protective equipment, such as respirators, eye protection, and protective clothing, and of ventilation, such as local exhaust, general, special, or other types.

(11) Special precautionary information about handling and storing.

(12) Any other general precautionary information.

(c) The pertinent information required by paragraph (b) of this section shall be recorded either on U. S. Department of Labor Form LSB OOS-4, "Material Safety Data Sheet," or on an essentially similar form which has been approved by the Bureau of Labor Standards. Copies of Form LSB OOS-4 may be obtained at any of the following regional offices of the Bureau of Labor Standards:

1. North Atlantic Region, 341 Ninth Avenue, Room 920, New York, N. Y. 10001 (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont).
2. Middle Atlantic Region, Penn Square Building, Juniper and Filbert Streets, Philadelphia, Pennsylvania 19107 (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia).
3. South Atlantic Region, 1371 Peachtree Street, N. E., Suite 723, Atlanta, Georgia 30309 (Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, and Kentucky).
4. Great Lakes Region, 848 Federal Office Building, 219 South Dearborn Street, Chicago, Illinois 60604 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin).
5. Mid-Western Region, 2100 Federal Office Building, 911 Walnut Street, Kansas City, Missouri 64106 (Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming).
6. Western Gulf Region, 411 North Akard Street, Room 601, Dallas, Texas 75201 (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas).
7. Pacific Region, 10353 Federal Building, 450 Golden Gate Avenue, Box 36017, San Francisco, California 94102 (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, and Washington).

A completed form shall be preserved and available for inspection for a period of 3 months from the date of the completion of the job.

(d) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

(e) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under paragraph (a) of this section and those hazards for which specific precautions are required in Subparts B, C, and D of this part.

(f) The employer shall provide adequate washing facilities for employees engaged in the application of paints or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.

(g) The employer shall not permit eating or smoking in areas undergoing surface preparation or preservation.

(h) The employer shall not permit employees to work in the immediate vicinity of uncovered garbage and shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.

3. Section 1502.2 is amended by adding thereto an additional paragraph (s), to read as follows:

§ 1502.2 Definitions.

* * * * *

(s) For purposes of § 1502.57, the term "hazardous material" means a material which has one or more of the following characteristics: (1) Has a flash point below 140°F., closed cup, or is subject to spontaneous heating; (2) has a threshold limit value below 500 ppm in the case of a gas or vapor, below 500 Mg/M³ for fumes, and below 25 mppcf in case of a dust; (3) has a single dose oral LD_{50}

below 500 mg/kg; (4) is subject to polymerization with the release of large amounts of energy; (5) is a strong oxidizing or reducing agent; (6) causes first degree burns to skin in short time exposure, or is systemically toxic by skin contact; or (7) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes which have one or more of the above characteristics.

4. Section 1502.57 is revised to read as follows:

§ 1502.57 Health and sanitation.

(a) No chemical product, such as a solvent or preservative; no structural material, such as cadmium or zinc coated steel, or plastic material, and no process material, such as welding filler metal, which is a hazardous material within the meaning of § 1502.2 (s), shall be used until the employer has ascertained the potential fire, toxic, or reactivity hazards which are likely to be encountered in the handling, application, or utilization of such a material.

(b) In order to ascertain the hazards, as required by paragraph (a) of this section, the employer shall obtain the following items of information which are applicable to a specific product or material to be used:

(1) The name, address, and telephone number of the source of information specified in this paragraph, preferably those of the manufacturer of the product or material.

(2) The trade name and synonyms for a mixture of chemicals, a basic structural material, or for a process material; and the chemical name and synonyms, chemical family and formula for a single chemical.

(3) Chemical names of hazardous ingredients, including, but not limited to, those in mixtures, such as those in: (i) Paints, preservatives and solvents; (ii) alloys, metallic coatings, filler metals and their coatings or core fluxes; and (iii) other liquids, solids, or gases (e.g., abrasive materials).

(4) An indication of the percentage, by weight or volume, which each ingredient of a mixture bears to the whole mixture, and of the threshold limit value of each ingredient, in appropriate units.

(5) Physical data about a single chemical or a mixture of chemicals, including boiling point, in degrees Fahrenheit; vapor pressure, in millimeters of mercury; vapor density of gas or vapor (air = 1); solubility in water, in percent by weight; specific gravity of material (water = 1); percentage volatile, by volume, at 70 degrees Fahrenheit; evaporation rate for liquids (either butyl acetate or ether may be taken as 1); and appearance and odor.

(6) Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flash point, in degrees Fahrenheit; flammable limits, in percent by volume in air; suitable extinguishing media or agents; special fire fighting procedures; and unusual fire and explosion hazard information.

(7) Health hazard data, including threshold limit value, in appropriate units, for a single hazardous chemical or for the individual hazardous ingredients of a mixture, as appropriate; effects of over-exposure; and emergency and first-aid procedures.

(8) Reactivity data, including stability, incompatibility, hazardous decomposition products and hazardous polymerization.

(9) Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.

(10) Special protection information, including use of personal protective equipment, such as respirators, eye protection, and protective clothing, and of ventilation, such as local exhaust, general, special, or other types.

(11) Special precautionary information about handling and storing.

(12) Any other general precautionary information.

(c) The pertinent information required by paragraph (b) of this section shall be recorded either on U. S. Department of Labor Form LSB OOS-4, "Material Safety Data Sheet," or on an essentially similar form which has been approved by the Bureau of Labor Standards. Copies of Form LSB OOS-4 may be obtained at any of the following regional offices of the Bureau of Labor Standards:

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A completed form shall be preserved and available for inspection for a period of 3 months from the date of the completion of the job.

(d) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

(e) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under paragraph (a) of this section and those hazards for which specific precautions are required in Subparts C and D of this part.

(f) The employer shall provide adequate washing facilities for employees engaged in the application of paints or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.

(g) The employer shall not permit eating or smoking in areas undergoing surface preparation or preservation.

5. Section 1503.2 is amended by adding thereto an additional paragraph (r), to read as follows:

§ 1503.2 Definitions.

* * * * *

(r) For purposes of § 1503.57, the term "hazardous material" means a material which has one or more of the following characteristics: (1) Has a flash point below 140°F., closed cup, or is subject to spontaneous heating; (2) has a threshold limit value below 500 ppm in the case of a gas or vapor, below 500 Mg/M³ for fumes, and below 25 mppcf in case of a dust; (3) has a single dose LD_{50} below 500 mg/kg; (4) is subject to polymerization with the release of large amounts of energy; (5) is a strong oxidizing or reducing agent; (6) causes first degree burns to skin in short time exposure, or is systemically toxic by skin contact; or (7) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes which have one or more of the above characteristics.

6. Section 1503.57 is revised to read as follows:

§ 1503.57 Health and sanitation.

(a) No chemical product, such as a solvent or preservative; no structural material, such as cadmium or zinc coated steel, or plastic material; and no process material, such as welding filler metal, which is a hazardous material within the meaning of § 1503.2 (r), shall be used until the employer has ascertained the potential fire, toxic, or reactivity hazards which are likely to be encountered in the handling, application, or utilization of such a material.

(b) In order to ascertain the hazards, as required by paragraph (a) of this section, the employer shall obtain the following items of information which are applicable to a specific product or material to be used:

(1) The name, address and telephone number of the source of information specified in this paragraph, preferably those of the manufacturer of the product or material.

(2) The trade name and synonyms for a mixture of chemicals, a basic structural material, or for a process material; and the chemical name and synonyms, chemical family and formula for a single chemical.

(3) Chemical names of hazardous ingredients, including, but not limited to, those in mixtures, such as those in: (i) Paints, preservatives and solvents; (ii) alloys, metallic coatings, filler metals and their coatings or core fluxes; and (iii) other liquids, solids, or gases (e.g., abrasive materials).

(4) An indication of the percentage, by weight or volume, which each ingredient of a mixture bears to the whole mixture, and of the threshold limit value of each ingredient, in appropriate units.

(5) Physical data about a single chemical or a mixture of chemicals, including boiling point, in degrees Fahrenheit; vapor pressure, in millimeters of mercury; vapor density of gas or vapor (air = 1); solubility in water, in percent by weight; specific gravity of material (water = 1); percentage volatile, by volume, at 70 degrees Fahrenheit; evaporation rate for liquids (either butyl acetate or ether may be taken as 1); and appearance and odor.

(6) Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flash point, in degrees Fahrenheit; flammable limits, in percent by volume in air; suitable extinguishing media or agents; special fire fighting procedures; and unusual fire and explosion hazard information.

(7) Health hazard data, including threshold limit value, in appropriate units, for a single hazardous chemical or for the individual hazardous ingredients of a mixture, as appropriate; effects of over-exposure; and emergency and first aid procedures.

(8) Reactivity data, including stability, incompatibility, hazardous decomposition products, and hazardous polymerization.

(9) Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.

(10) Special protection information, including use of personal protective equipment, such as respirators, eye protection, and protective clothing, and of ventilation, such as local exhaust, general, special, or other types.

(11) Special precautionary information about handling and storing.

(12) Any other general precautionary information.

(c) The pertinent information required by paragraph (b) of this section shall be recorded either on U. S. Department of Labor Form LSB OOS-4, "Material Safety Data Sheet," or on an essentially similar form which has been approved by the Bureau of Labor Standards. Copies of Form LSB OOS-4 may be obtained at any of the following regional offices of the Bureau of Labor Standards:

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4. Great Lakes Region, 848 Federal Office Building, 219 South Dearborn Street, Chicago, Illinois 60604 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin).
5. Mid-Western Region, 2100 Federal Office Building, 911 Walnut Street, Kansas City, Missouri 64106 (Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming).
6. Western Gulf Region, 411 North Akard Street, Room 601, Dallas, Texas 75201 (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas).
7. Pacific Region, 10353 Federal Building, 450 Golden Gate Avenue, Box 36017, San Francisco, California 94102 (Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, and Washington).

A completed form shall be preserved and available for inspection for a period of 3 months from the date of the completion of the job.

(d) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

(e) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under paragraph (a) of this section and those hazards for which specific precautions are required in Subparts B and D of this part.

(f) The employer shall provide adequate washing facilities for employees engaged in the various shipbreaking operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees.

The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.

(g) The employer shall not permit eating or smoking in the immediate areas where shipbreaking operations produce atmospheric contaminants.

(h) No minor under 18 years of age shall be employed in shipbreaking or related employments.
(Sec. 41, 44 Stat. 1444, as amended; 33 U.S.C. 941)

Effective Date. These amendments shall become effective 180 days following the date of publication in the Federal Register.

The above was published in the Federal Register of

1968

APPENDIX 3

GLOSSARY OF TERMS

ACUTE – An adverse effect on the human body with symptoms of high severity coming quickly to a crisis.

CATALYST – A chemical which changes the rate of a chemical reaction between two other chemicals without affecting the chemical itself.

CHRONIC – An adverse effect on the human body with symptoms which develop slowly over a long period of time or which frequently recur.

EVAPORATION RATE – A measure of the length of time required for a given amount of a substance to evaporate, compared with the time required for an equal amount of ether or butyl acetate to evaporate.

FLAMMABLE LIMITS – (Explosive Limits)

Lower Flammable (Explosive) Limit – The lowest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures below this concentration are too "lean" to burn.

Upper Flammable (Explosive) Limit – The highest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures above this concentration are too "rich" to burn.

INGESTION – The taking in of a substance through the mouth.

INHIBITOR – A chemical which is added to another substance to prevent an unwanted chemical change from occurring.

ORAL DOSE (LD_{50}) – The amount of a substance taken by mouth that would kill within 14 days half (50%) of those exposed. The dose is measured in milligrams per kilogram of body weight of the test animal.

OXIDIZING AGENT – A chemical which gives off free oxygen in a chemical reaction.

POLYMERIZATION – A chemical reaction in which two or more small molecules combine to form larger molecules.

REACTIVITY – A measure of the tendency of a substance to undergo chemical reaction with the release of energy.

REDUCING AGENT – A chemical which absorbs oxygen in a chemical reaction.

SOLUBILITY – A measure of the amount of the substance that will dissolve in a given amount of water or other substance.

SPONTANEOUS HEATING – An increase in the internal temperature of a substance due to a chemical or physical change without the application of external heat.

STABILITY – A measure of the ability of a substance to be handled and stored without undergoing unwanted chemical changes.

THERMAL DECOMPOSITION – Chemical breakdown of material brought about by the exposure to heat.

THRESHOLD LIMIT VALUES – Refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect.

TOXICITY – The measure of the adverse effect exerted on

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. LSB-OOS-4
May 1969

U.S. DEPARTMENT OF LABOR

WORKPLACE STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code)	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
CHEMICAL FAMILY	FORMULA

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H_2O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER			
APPEARANCE AND ODOR			

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

INSTRUCTIONS AND EXPLANATION OF TERMS

The Material Safety Data Sheet (Form LSB OOS-4), or one essentially similar, approved by the Bureau of Labor Standards, is required to be filled out only on materials which, when used without special precautions and controls, will constitute a health hazard to workers. Where information is not available from published sources or by normal test procedures, the fact shall be indicated by inserting the word "unknown." If information is inapplicable to the material under consideration, the initials "n.a." (not applicable) shall be inserted.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATIBILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES	EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

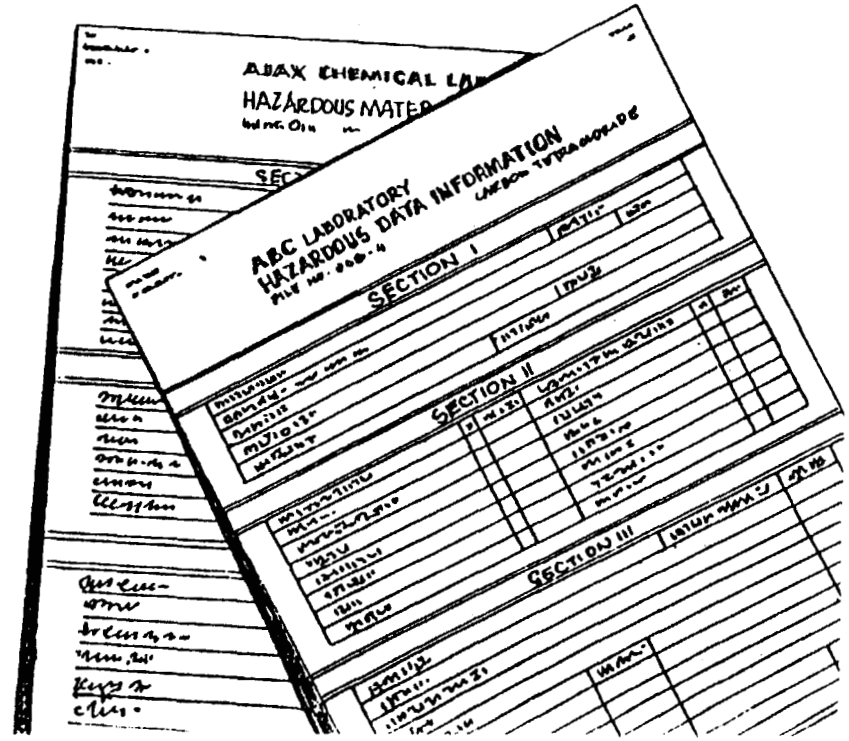
SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

DEFINITION OF AN ESSENTIALLY SIMILAR FORM

An essentially similar form is interpreted as being one in which Section II is modified to indicate only the product or group of products which it is intended to cover. The remaining sections of the form will list the items of information in the sequence shown on Form OOS-4, but the space given to those entire sections which are inapplicable may be reduced to that necessary to enter the initials "n.a." (not applicable).



NOTE: THIS DATA IS FURNISHED GRATUITOUSLY INDEPENDENT OF ANY SALE OF THE PRODUCT, ONLY FOR YOUR INVESTIGATION AND INDEPENDENT VERIFICATION. WHILE THE INFORMATION IS BELIEVED TO BE CORRECT, TEXACO INC. MAKES NO REPRESENTATION AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. TEXACO INC. SHALL IN NO EVENT BE RESPONSIELE FOR ANY DAMAGES OF WHATSOEVER NATURE DIRECTLY OR INDIRECTLY RESULTING FROM THE PUBLICATION OR USE OF OR RELIANCE UPON DATA CONTAINED HEREIN. NO WARRANTY, EITHER EXPRESS OR IMPLIED OF MERCHANTABILITY OR FITNESS OR OF ANY NATURE WITH RESPECT TO THE PRODUCT OR TO THE DATA HEREIN IS MADE HEREUNDER.

EXPLANATION OF THE INDUSTRIAL HYGIENE. TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

Product Information

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refers to chemical. generic. or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following Characteristics: (1) has a flash-point below 200°F, closed cup or subject to spontaneous heating; **(2)** has a threshold limit value below ***500*** ppm for gases and vapor, below ***5*** mg/m³ for dusts, fumes and mist, and below **25** MPPCF for mineral dust: **(3)** a single dose oral LD50 below 500 mg/kg; **(4)** causes burns to the skin in the short-term exposure or is systemically toxic by skin contact: **(5)** has been demonstrated to be a skin or eye irritant or causes respiratory irritation: ***(6)*** may cause skin or respiratory sensitization: **(7)** has teratogenic, mutagenic or other toxic effects; ***(8)*** may cause asphyxia or pneumonoconiosis; **(9)** in the course of normal operations may produce dusts, **gases,** fumes. vapors, mist or smoke which have one or more of the above characteristics.

Physiological Etfects

Acute Exposures (Eye, Skin. Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the proauct.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue. through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to. the same substance.

Median Lethal Dose or Concentration (LD50, LC50)

Refers to that dose or concentration of the material which will produce death in ***50*** per cent of the animals. For inhalation, exposure time is indicated.

irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, a yes or no answer indicates whether or not the material is an irritant.

Emergency and First Aid Procedures

Gives first aid and emergency procedures in case of eye andlor skin contact, ingestion and inhalation.

Occupational Control Procedures

Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

Ventilation

Ventilation: type, i.e. local exhaust, mechanical, etc.

Precautionary Label

Label that is required or recommended.

Permissible Concentrations

Indicates Threshold Limit Value (TLV) andlor Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists andlor standards promugated by the Occupational Safety and Health Administration.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

CBB
5-12-80

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: Texaco Inc.	EMERGENCY TELEPHONE NO.: 212-353-6951
ADDRESS (Number, Street, City, State, and ZIP Code): 135 E. 42nd Street, New York, N.Y. 10017	
CHEMICAL NAME AND SYNONYMS: Benzene, benzol	TRADE NAME AND SYNONYMS: Benzene
CHEMICAL FAMILY:	FORMULA: C_6H_6

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS: Benzene	100	25ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	80 C	SPECIFIC GRAVITY (H_2O=1)	0.885
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	100%
VAPOR DENSITY (AIR=1)	2.8	EVAPORATION RATE (other =1)	2.8
SOLUBILITY IN WATER	insoluble		

APPEARANCE AND ODOR: clear liquid, typical benzene odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 12 F closed cup	FLAMMABLE LIMITS	Lel: 1.3%	Uel: 7.1%

EXTINGUISHING MEDIA: Water may be ineffective

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS

020021

THRESHOLD LIMIT VALUE: 25 ppm ceiling value

EFFECTS OF OVEREXPOSURE: High concentrations may cause anesthestic effects; prolonged chronic excessive exposure may damage blood forming organs.

EMERGENCY AND FIRST AID PROCEDURES: If unconscious, remove to fresh air and apply artificial respiration.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Respiratory protection should be used for cleaning large spills.

WASTE DISPOSAL METHOD: In accordance with local laws and regulations for disposing light petroleum distillates.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Organic vapor or supplied air type

VENTILATION	LOCAL EXHAUST required	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES | EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Danger: Extremely flammable - Keep away from heat sparks and open flame. Keep container closed.

OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin. Use with adequate ventilation.

02002

MATERIAL SAFETY DATA SHEET

ATTACHMENT C

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: TEXACO INC.	EMERGENCY TELEPHONE NO.: 212-953-6951
ADDRESS (Number, Street, City, State, and ZIP Code): 135 E. 42nd St., New York, N. Y. 10017	
CHEMICAL NAME AND SYNONYMS: Benzene, benzol	TRADE NAME AND SYNONYMS: Benzene
CHEMICAL FAMILY: Aromatic hydrocarbon	FORMULA: C_6H_6

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Benzene	100	25

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	176 (80°C)	SPECIFIC GRAVITY (H_2O=1)	0.885
VAPOR PRESSURE (mm Hg.) @70°F	75.1	PERCENT, VOLATILE BY VOLUME (%)	100%
VAPOR DENSITY (AIR=1)	2.8	EVAPORATION RATE (ether = 1)	2.8
SOLUBILITY IN WATER	insoluble		
APPEARANCE AND ODOR	clear liquid, typical benzene odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 12 Tag (closed cup D-56)	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA: Dry chemical foam or carbon dioxide			
SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 25 ppm ceiling value

EFFECTS OF OVEREXPOSURE: High concentrations may cause anesthetic effects; prolonged chronic excessive exposure may damage blood forming organs.

EMERGENCY AND FIRST AID PROCEDURES: If anesthetic symptoms develop, remove to fresh air. If unconscious, apply artificial respiration.

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR -		
	WILL NOT OCCUR -	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Supplied air respiratory protection should be used for cleaning large spills or spills in confined space. Isolate any sources of ignition.

WASTE DISPOSAL METHOD: In accordance with local laws and regulations for disposing light petroleum distillates.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Organic vapor or supplied air type.

VENTILATION		
	LOCAL EXHAUST: required	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Recommended	Chemical goggles

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: DANGER: EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Keep container closed.

OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin. Use with adequate ventilation.

INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 4 **FOR** CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms

7513 309 Benzene

Manufacturer's Name: Texaco Inc.

Emergency Telephone No.: (713) 722-8381

Address: 4800 Fournace Place, P.O. Box 430, Bellaire, Texas 77401

Chemical **Name** andlor Family or Description: Benzene

THIS PRODUCT **IS** CLASSIFIED AS: _____ NOT HAZARDOUS:

__X__ HAZARDOUS BY DEFINITION NO.(S) ~~1 3 7~~ ON ATTACHED EXPLANATION SHEET 4.

WARNING **STATEMENT:** **DANGER!** BENZENE **CANCER HAZARD** EXTREMELY FLAMMABLE

PHYSIOLOGICAL EFFECTS:

Effects of Exposure

Acute:

Eyes: May cause slight-moderate eye irritation with moderate burning sensation. **These** effects are usually transient.

Skin: Slightly irritating with possible redness, edema, or drying of' **the** skin. May cause dermatitis on prolonged or repeated contact.'

Respiratory System: Exposure to high concentrations **may** cause headache, weariness, lassitude, loss of appetite and possibly blood abnormalities.

Chronic: Prolonged, repeated exposures to **Other atmospheric** benzene concentrations in excess of several hundred parts per million can cause decreases **in cell** counts o **Sensitization Properties** all formed blood elements and possibly irreversible injury of the blood forming tissues. Benzene **is** suspected of causing leukemia, a form of cance

Skin: Yes____ No X Unknown____ Respiratory: Yes____ No____ Unknown__X__

Median Lethal Dose (LD50, LC50) (Species)		Irritation Index, tstimation of Imtation (Species)	
Oral	3.3g/Kg (rat)	Skin	N.D.
Inhalation	10,000 ppm, 7 hours (Rat)	Eyes	N.D.
Dermal	N.D.	Symptoms of Exposure	See above
Other	-		

*N.D.—Not Determined: *N.A.—Not Applicable

(—Less Than; } —Greater Than

FORM G-391 3-79

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Gloves impervious to chemicals and petroleum distillates recommended. NIOSH has indicated that only gloves made of Viton® rubber or polyvinyl-alcohol provide reasonable protection from benzene.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into large tanks, vessels, or other confined spaces.

Ventilation Required: Normal — Other: Local exhaust ventilation recommended

Precautionary Label: BENZENE DANGER! EXTREMELY FLAMMABLE, CANCER HAZARD
VAPOR HARMFUL MAY CAUSE EYE IRRITATION
Keep away from heat, sparks and flame
Avoid prolonged or repeated breathing of vapor
Keep container closed. Use only with adequate ventilation.
Avoid prolonged or repeated contact with skin. Avoid eye contact. Wash thoroughly after handling.

Permissible Concentrations:

Air: 10 ppm for benzene averaged over an 8-hour daily exposure (AGIH, 1979). See additional comments for OSHA permissible concentration and ACGIH skin notation.

Other

Requirements for Transportation, Handling and Storage

Transport, handle, and store in accordance with OSHA Regulation 1910.106

DOT Proper Shipping Name: Benzene

DOT Hazard Class (if applicable): Flammable liquid

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) 176 — Vapor Pressure 74.6@20°C (mmHg)

Specific Gravity 0.8835@60/60°F (H_2O = 1) — Vapor Density 2.77 (Air = 1)

Appearance and Odor: Clear colorless liquid with characteristic pleasant odor

pH of undiluted product N.A. — Solubility Nil

Percent Volatile by Volume 100 — Evaporation 1.0 carbon tetrachloride)=1

Viscosity N.D. — Other -

Hazardous Polymerizations _____ Occur X Do not occur

The Material Reacts Violently With:

Air	Water	Heat	Strong Oxidizers	Others
			Possibly	

FIRE PROTECTION INFORMATION

Ignition Temp. °F 928 — Flash Point F. (Method) 12°F (TCC)

Flammable limits % Lower 1.3 — Upper 7.1

Products Evolved When Subjected to Heat or Combustion: Carbon monoxide, carbon dioxide, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures: According to the National Fire Protection Association Guide 325M, use dry chemical, foam, or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for men attempting to stop the leak.

Unusual Fire or Explosive Hazards: Heating greatly increases explosive hazard. High vapor concentration may be le[illegible]al.

COMPOSITION

Code No. 7513

Components Presenting a Significant Hazard	%	Other Components	%
Benzene CAS # [000-071-432]	100		

ENVIRONMENTAL PROTECTION

Waste Disposal Method Dispose in approved chemical disposal area or in a manner which complies with all local, state, and federal regulations.

Procedures in Case of Breakage or Leakage Eliminate all ignition sources. Contain spill if possible. Ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied-air mask for large spills in confined area. Avoid contact with eyes. Remove with inert absorbant and non-sparking tools.

Remarks: None.

ADDITIONAL COMMENTS

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1980).
Conversion factor 7.357 lbs/gal 100% wt Benzene.

OSHA permissible concentrations: 8 hour time-weighted average	Acceptable ceiling concentration	Acceptable maximum peak above ceiling concentration for an 8-hour shift
10 ppm	25 ppm	50 ppm for 10 minutes

ACGIH Skin notation--permissible concentrations should be adjusted downward if there is any significant skin or eye contact. Skin contact should therefore be minimized.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: F. F. Bentley Title: Coordinator, Product Safety

Date: 11/25/80 ☐ New ☒ Revised, Supersedes 10/1/79