Nashville State Community College
120 White Bridge Rd.
Nashville, TN 37209

Material Safety Data Sheets (MSDS)

Hazardous communication standard 29 CFR 1910.1200

Purpose of a MSDS

To inform you about:

- The material's chemical make-up.
- The material's physical properties that make it dangerous to handle.
- The level of protective gear you need to wear to work safely with the material.
- The first aid treatment to be provided when someone is exposed to the material.
- The preplanning needed for safely handling spills, fires, and day-to-day operations.
- How to respond to accidents.

What information is on a MSDS

The manufacturer or supplier provides:

- Chemical Identity
- Health Hazard Data
- Manufacturer information
- Precautions for Safe Handling and Use
- Hazardous components
- Exposure controls/personal protective equipment
- Fire and Explosion Hazard Data

Material Safety Data Sheet (MSDS)

The Material Safety Data Sheet (MSDS) is a detailed information list prepared by the manufacturer for a particular material or chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures, and control measures. Information on an MSDS aids in the selection of safe products and helps prepare employers and employees to work with the material or chemical safely and to effectively respond in an emergency situation.

The MSDS/s is a comprehensive source of information for the particular chemical or material. There may be information on the MSDS that is not useful to you or not important to the safety and health in your particular operation. Concentrate on the information that is applicable to your situation. Generally, hazard information and protective measures should be the focus of concern.

Obtaining MSDS requirements

Employers must receive & maintain an MSDS for each hazardous material or chemical that is used in the facility. They are entitled to receive this information automatically upon purchase of the material or chemical. When new information becomes available concerning a material's chemical components, hazards or ways to protect against the hazards, hazardous material and chemical manufacturers must add

it to their MSDS within three months and provide it to their customers with the next shipment of the material or chemical. If there are multiple suppliers of the same chemical, there is no need to retain multiple MSDS for the same chemical.

MSDS must accompany or precede the shipment of hazardous material or chemical. When the manufacturer or supplier fails to send an MSDS with a shipment labeled as a hazardous material or chemical, the employer must obtain one from the chemical manufacturer or supplier as soon as possible.

When an employer is unable to obtain an MSDS from a supplier or manufacturer, the employer must submit a written complaint, with complete background information, to the nearest OSHA area office. OSHA will then send a certified letter to the supplier or manufacturer to obtain the needed information. If the supplier or manufacturer still fails to respond within a reasonable time, OSHA will take appropriate action.

Sections of an MSDS

Section 1. **Product Identification**

The name, address and telephone number of the company that produced the material is listed in this first section; also the date the MSDS was issued and the name of the material. The law requires the name of the material on the MSDS to appear exactly the same, including spelling, as on the container.

Section 2. **Information on chemical components**

MSDS contains information concerning the product's individual hazardous chemicals and their relative percentages. Many products contain mixtures of chemicals. All components that meet OSHA Hazard Communication standard criteria of a hazardous chemical must be identified in this section. In addition, the materials corresponding Chemical Abstracts Service (CAS) numbers must also be listed.

*Section 3.***Hazards Identification**

This section gives information on the potential adverse health effects and symptoms associated with exposure to this material or chemical. If it has been determined that the material is a carcinogen, teratogen, mutagen, to the environment, then this information may be found in this section.

Section 4. **First Aid Measure**

If accidental exposure were to occur, this section is valuable to determine the immediate first aid response. This section should indicate the proper first aid treatment for accidental exposure by inhalation, skin, eye, and ingestion.

Section 5. **Fire fighting measures**

This section of the MSDS describes the basic fire-fighting measures. This should include the fire and explosive properties of the material and the proper extinguishing materials. The precautions and safety procedures to effectively put out the fire are described here.

*Section 6.***Accidental spill or release**

When a hazardous material is accidentally spilled, the emergency can be minimized if the proper response is made immediately. This section describes evacuation procedures, containment and cleanup techniques, and other emergency requirements. Information from this section will allow

you to plan for emergency response, training of individuals using the hazardous material, and making available the necessary equipment to quickly contain and clean up a spill or leak.

*Section 7.***Handling and storage**

This section provides safe storage and handling information for employees. General handling precautions and practices are described to prevent release into the environment and overexposure during contact with the material.

*Section 8.***Exsposure Controls/ Personal Protective Equipment**

Exposure controls include engineering controls like fume hoods and ventilation. Exposure controls also include administrative and engineering controls such as training, labeling and warning devices, fume hoods and ventilation. This section also provides the important information about personal protective equipment (PPE) such as respirators, safety goggles, gloves, aprons, and boots. This section includes PPE for both normal use and emergency response.

Section 9. **Physical and chemical**

The physical data varies depending on whether the substance is a gas, liquid, or solid at room temperature. Other physical properties that may be listed include; boiling point, melting point, vapor pressure, vapor density, viscosity, specific gravity, evaporation rate, solubility in water, flash point, and etc.

Section 10. **Stability and Reactivity**

List materials or conditions that are hazardous when combined with the product, and should include: stability at room temperatures and atmospheric pressure, conditions to avoid, incompatible materials, decomposition products, and hazardous polymerization.

Section 11. **Toxicology information**

Information concerning the hazardous chemical's toxicity is listed in this section. This information can be listed in other sections of the MSDS like the Health Hazard and First Aid section. This toxicity data is mainly intended for medical professionals, occupational health and safety professionals, and toxicologist.

Section 12. **Ecological information**

This information helps the Environmental Professional or Hazmat personnel in evaluating the effect a product may have if it is released into the environment. The person using the product may use this information to determine waste management practices. Note: this section may be omitted and is not required.

Section 13. **Disposal considerations**

Contains information on special disposal methods and waste management options like recycling. Also included are limitations directed by Federal, state, or local governments, and waste classifications like RCRA and EPA identification numbers and descriptions. This information is necessary for the College to stay within the law when disposing of chemical waste.

Section 14. **Transportation information**

The shipping of hazardous materials is regulated by the Department of Transportation (DOT). This section provides the important DOT shipping name, ID (UN or NA numbers), hazard class, and labels required to be on the container. This section is especially valuable if the hazardous material will be shipped from this campus.

Section 15. **Regulatory Information**

This section provides regulatory information. These regulations may include: OSHA, TSCS, CERCLA, and CWA, reportable quantities for spills, storage, and shipping can be listed also.

Example of MSDS

MSDS	Material Safety Data Sheet for #2 Diesel
Definition of terms	**1. Chemical Product** **MSDS Number:** U7770 **MSDS Date:** 01-31-99 **Product Name:** #2 Diesel Fuel **24 Hour Emergency Phone: (210) 979-8346** **Transportation Emergencies: Call Chemtrec at 1-800-424-9300** MSDS Assistance: (210) 592-4593 **Distributors Name and Address:** T.W. Brown Oil Co., Inc. 1857 Knoll Drive Ventura, California 93003 **Chemical Name:**#2 Diesel Fuel **Cas Number:** 68476-34-6 **Synonyms/Common Names:** This Material Safety Data Sheet applies to the following product descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product, and are not reflected in this document. Consult specification sheets for technical information. **California Air Resources Board (Carb) Diesel Fuel-** On-road, Off-Road, Tax Exempt blends **Premium Diesel Fuel-** Low-Sulfur, High-sulfur, On-Road, Off-Road, Tax Exempt blends **#2 Distillate-** Low-Sulfur, High-sulfur, On-Road, Off-Road, Tax Exempt blends **#2 Diesel Fuel-** Low-Sulfur, High-sulfur, On-Road, Off-Road, Tax Exempt blends **#2 Fuel Oil-** Low-Sulfur, High-sulfur, On-Road, Off-Road, Tax Exempt blends

2. Composition, Information On Ingredients

Product Use: This product is intended for use as a fuel in engines and heaters designed for diesel fuels, and for use in engineered processes. Use in other applicatiions may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

Description: #2 Diesel is a complex mixture of hydrocarbons from a variety of chemical processes blended to meet standardized product specifications. Composition varies greatly and includes C9 to C20 hydrocarbons with a boiling range of about 325-675 degrees F. The following is a non-exhaustive list of common components, typical percentage ranges in product, and occupational exposure limits for each.

Component or Material Name	%	CAS Number	ACGIH Limits TLV -- STEL -- Units	OSHA Exposure Limits PEL -- STEL -- C/P -- Units
Cat cracked distillate, light	0-100	64741-59-9	100 -- NA -- mg/m3	N/A -- N/A -- N/A -- N/A
Hydrotreated distillate, middle	0-100	64742-46-7	100 -- NA -- mg/m3	N/A -- N/A -- N/A -- N/A
Hydrotreated distillate, light	0-100	64742-47-8	100 -- NA -- mg/m3	N/A -- N/A -- N/A -- N/A
Gas oil, light	0-100	64741-44-2	100 -- NA -- mg/m3	N/A -- N/A -- N/A -- N/A

3. Hazards Identification

Health Hazard Data:

1. The major effect of exposure to this product is giddiness, headache, central nervous system depression; possible irritation of eyes, nose, and lungs; and dermal irritation. Signs of kidney and liver damage may be delayed. Pulmonary irritation secondary to exhalation fo solvent.

2. NIOSH recommends that whole diesel engine exhaust be regarded as a potential occupational carcinogen. Follow OSHA and NSHA rules where diesel engine exhaust fumes may be generated.

3. A life time skin painting study by the American Petroleum Institute has shown that similar naphtha products with a boiling range of 350-700 degrees F usually produce skin tumors and/ or skin cancers in laboratory mice. Only a weak to moderate response occurred. The effect to humans has not been

determined.

4. Positive results at 2.0 ml/kg and 6.0 ml/kg noted in mutagenesis studies via in-vivo bone marrow cytogenetics assay in rats.

5. Kerosene is classified as a severe skin irritant. Mutation data has been reported for kerosene products. Hydrotreated kerosene is listed as being probably carcinogenic to humans with limited evidence in humans and sufficient evidence in experimental animals.

Hazards of Combustion Products: Carbon monoxide and carbon dioxide can be found in the combustion products of this product and other forms of hydrocarbon combustion. Carbon monoxide in moderate concentrations can cause symptoms of headache, nausea, vomiting, increased cardiac output, and confusion. Exposure to higher concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage, and/or death. Exposure to high concentrations of carbon dioxide can cause simple asphyxiation by displacing available oxygen. Combustion of this and other similar materials should only be carried out in well ventilated areas.

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