SOP-GEN-021 Hazard Communication Program

1.0 Policy
2.0 Purpose
3.0 Responsibility
4.0 References
5.0 Components of Hazard Communication Program
6.0 Accidental Exposure Procedures

Appendix A - NFPA Hazard Identification System
Appendix B - Definitions
Appendix C - New Global Pictograms
Appendix D - New SDS Format

1.0 Policy

TDI-Brooks maintains this written Hazard Communication (HazCom) Program in accordance with OSHA's Hazard Communication Standard 29 CFR 1910.1200.

Under the TDI-Brooks HazCom program, employees will be informed of the contents of the OSHA Hazard Communications standard, the hazardous properties of chemicals with which they work and mitigations to protect themselves from these chemicals.

All shore-based facilities and vessels of this company will participate in the Hazard Communication Program. Copies of the Hazard Communication Program are available on the SDS page of the ship web pages and in the front of all SDS binders.

2.0 Purpose

OSHA created the Hazard Communication Standard to ensure that workers in all industries and workplaces understand the chemical hazards to which they are exposed and how to protect themselves from those hazards.

In March 2012 the regulation was revised to align with the new Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This revision emphasizes an employee's "Right to Understand."

It requires employers to provide information to their employees about the hazardous chemicals to which they are exposed by means of a hazard communication program, labels and other forms of warning, safety data sheets and information and training.

3.0 Responsibility

The Senior Management of TDI-Brooks is responsible for encouraging all employees to participate in this program and following its guidelines.

The HSE Manager is responsible for administering this program, providing training for all employees of TDI-Brooks and updating this plan as necessary.

The Chief Mate is responsible for ensuring that all hazardous materials are handled and stored safely aboard the vessels in accordance to relevant regulations **and that SDS binders are maintained and current.**

Supervisors shall ensure that employees under their supervision comply with this program. Employees are responsible for fully participating in this program as it applies to their work areas and work responsibilities.

4.0 References

- 29 CFR 1910.1200 – OSHA's Hazard Communication Standard
- 46 CFR 194.15 – Laboratory chemicals on research vessels
- 46 CFR 147 – Hazardous ship stores used to maintain and operate vessel

5.0 Components of Hazard Communication Program

- A list of the hazardous chemicals known to be present in the workplace
- Labels and Labeling of Hazardous Chemicals and Materials Containers
- Safety Data Sheets or SDS's - formerly Material Safety Data Sheets or MSDS
- Personnel Training and Information
- A written "Hazardous Communication Program"

5.1 Chemicals List

An initial list of all chemicals and materials shall be made for each vessel or facility. The chemical list will be updated as new chemicals are brought into the workplace. A copy of the chemical list will be kept with the SDS's in a public area accessible to all employees.

It will be the responsibility of the persons ordering or purchasing any new chemicals or products to ensure that the chemical list is updated and that the SDS is added to the SDS binder.

5.2 Safety Data Sheets (SDS)

An SDS will be provided for all chemicals requiring one. The SDSs are available at each facility and on each vessel for all employees to view. The SDS binder is in an easily accessible location and on the ship web pages on the Safety Data Sheets page.

5.3 SDS Binder Maintenance

The Chief Mate is responsible for ensuring that all SDS binders on the vessel are maintained and updated as needed. Each SDS binder must contain in this order:

- A current copy of this SOP
- List of Chemicals at that specific location
- SDS for each chemical on the List of Chemicals

The person ordering or purchasing new chemicals is responsible for adding the new SDS to the binder. These should be delivered with the product. If not, most SDSs can be found easily with an Internet search. Inform the HSE Manager if you cannot locate an SDS for a product.

5.4 Labels and Labeling

The chemical manufacturer is required to provide the following information on all containers:

- Product identifier
- Signal word
- Hazard statement(s)
- Pictogram(s)
- Precautionary statement(s)
- Name, address and telephone number of the chemical manufacturer or importer.

The existing labels on incoming containers shall not be removed or defaced. Should it be necessary to replace a label, the new label will contain, at a minimum, the information above.

Any hazardous chemicals and materials that are put into **secondary containers (smaller container, spray or squirt bottles)** must be labeled with at least:

- **NAME**- The chemical name/ product identifier
- **GENERAL HAZARDS**- Words, pictures, symbols or combinations thereof which provide at least general information regarding the physical and health hazards of the chemical.

5.5 Unidentified Chemical Procedure

If a container label has fallen off or can no longer be read and the substance cannot be identified, the Chief Mate will isolate the item and arrange for proper disposal.

In US based facilities, contact the HSE Manager to arrange for hazardous waste disposal services.

5.6 Information and Employee Training

All personnel shall be informed of and trained on the “Hazardous Communication Program”/”Right to Understand” at the time of assignment and when a new chemical hazard is introduced to their workplace.

The training program will include the following topics:

1. Location of written HAZCOM program, SDS, and chemical list
2. Where the chemicals are used and stored
3. How to detect the presence or release of a hazardous chemical in the work areas (fire, smell, fumes, haze, color, irritation)
4. Physical and other hazards associated with the chemicals in the work area
5. Information regarding labels and labeling
6. Description of SDS and how to read the sections
7. The new GHS pictograms and what hazards they represent
8. How to prevent or reduce exposure to hazardous chemicals or materials (proper storage, labels, Personal Protective Equipment (PPE), warnings, training etc.)
9. Accidental Exposure procedures

5.7 Non-Routine Work or Tasks

Periodically, employees may be required to perform non-routine work or tasks requiring the use of hazardous chemicals. **The supervisor of the workers who will perform the work is responsible for conducting a Job Safety Analysis (JSA)** of the task and ensuring that each employee is provided information concerning the chemicals, materials, or exposure potential of the activity.

The JSA will examine risks and hazards of the task and provide information concerning:

- Specific hazards that may be associated with the chemical or material
- Protective measures to be taken
- Measures to minimize or prevent hazard exposure including ventilation, respirators, storage, postings, and Personal Protective Equipment (PPE)
- Review of the chemical SDS or other applicable technical information
- Review any emergency procedures to be taken

***If the addition of the new chemical is a result of a change in procedures, a Management of Change may be required first*.

5.8 Informing Contractors

Contractors working on TDI-Brooks vessels or facilities must participate in a **Contractor Safety Meeting** before starting work. Among other topics to be covered in this meeting are:

- Any hazardous chemicals to which contractors may be exposed on site
- The location(s) of the safety data sheets
- Location and use of the PPE Matrix, which describes appropriate PPE for routine tasks.

6.0 Accidental Exposure Procedures

TDI-Brooks will follow Accidental Exposure Procedures when a worker has been accidentally exposed to a chemical through skin contact, inhalation or ingestion. The primary focus is to provide first aid to the worker.

If Accidental Exposure occurs, follow these steps:

- **Stop or minimize exposure**. Remove contaminated clothing. If inhalation exposure, move the person to a well-ventilated area
- **Provide first aid** if appropriate. (Section 4 on SDS)
- **Notify the supervisor** as soon as possible
- **Complete the Employee Incident Report Form**. Even if there seems to be no harm done, some reactions are delayed and may not show up for hours.

Appendix A

The National Fire Protection Association (NFPA) Hazard Identification System

Common NFPA labeled materials on a vessel would be fuel oil, lube oil, diesel fuel, and compressed gasses such as nitrogen, oxygen and acetylene.

A number 0-4 or an abbreviation is added to each square to indicate the hazard severity.

In NFPA, the higher number indicates the greater hazard.



Rating Summary

Health-Blue

Number	Hazard Code	Description of Hazards
4	Danger	Can be lethal- even with short exposure
3	Warning	Can cause serious or permanent injury
2	Warning	Can cause temporary incapacitation or residual injury
1	Caution	Can be irritating
0		No unusual hazard

Flammability- Red

Number	Hazard Code	Description of Hazards
4	Danger	Highly flammable under normal temperatures
3	Warning	Flammable under most temperatures
2	Caution	Flammable at high temperatures
1	Caution	Must be preheated to burn

0		Will not burn

Reactivity-Yellow

Number	Hazard Code	Description of Hazards
4	Danger	Explosive material at room temperature
3	Danger	May explode if shocked or exposed to high temperature
2	Warning	Violent chemical change at high temperatures or pressures
1	Caution	Normally stable, less stable under higher temperatures
0	Stable	Stable- not reactive

Special-White

Number	Hazard Code	Description of Hazards
~~W~~	Danger	Reacts violently if exposed to water
OXY	Danger	Reacts violently if exposed to oxygen

Appendix B- OSHA HazCom Definitions

Definitions *[From 29 CFR 1900.1200(c)]*

Chemical means any substance, or mixture of substances.

Chemical name means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Exposure* or *exposed means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. “Subjected” in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Hazard category means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard class means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

Hazard statement means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label elements means the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Mixture means a combination or a solution composed of two or more substances in which they do not react.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. *See* Appendix B to § 1910.1200—Physical Hazard Criteria.

Pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

Precautionary statement means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

Product identifier means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product

identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pyrophoric gas means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.

Safety data sheet (SDS) means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

Signal word means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

Appendix C- GHS Pictograms and Hazards

As of June 1, 2015, OSHA required pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** **(Non-Mandatory)**  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

Appendix D- Standard Safety Data Sheet Format

The OSHA GHS regulation requires that all Safety Data Sheets have a standardized format of 16 sections as described below. If you find an SDS that is NOT in this format, destroy it- it is obsolete.

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/ information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/ personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties list the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*
Section 13, Disposal considerations*
Section 14, Transport information*
Section 15, Regulatory information*
Section 16, Other information includes the date of preparation or the last revision.

Employers must ensure that SDSs are readily accessible to employees. *See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.*