

## COURSE: HAZARDOUS MATERIALS SAFETY TRAINING

### SCOPE AND APPLICABILITY:

Provide an overview of transport legislation, storage and identification of hazardous products. It includes a knowledge about the use of PPE, identification of risks, emergency procedures, relation with health characteristics, consequences and first aid.

### REGULATIONS & STANDARDS

- NR26 – Safety Signaling and Labeling;
- NR20 - Safety and health at work with flammables and fuels;
- NR19 – Explosives;
- NORMAM 01, NORMAM 29, NORMAM 30.
- ABNT NBR 10004/04 - Solid Waste Classification;
- ABNT NBR 10005/04 - Procedure for obtaining leachate extract from solid waste
- ABNT NBR 10006/04 - Procedure for obtaining solubilized extract from solid waste;
- ABNT NBR 10007/04 - Sampling of solid waste;
- ABNT NBR 12235/92 - Storage of solid hazardous waste;
- ABNT NBR 14725 – Chemicals — Safety, health and environmental information — Globally Harmonized System (GHS) overview, classification, SDS and labeling of chemicals.

### COURSE CONTENT:

- 1. Introduction**
  - 1.1. What is Occupational Safety?
  - 1.2. Commandments of Occupational Safety;
  - 1.3. Murphy's Laws Applied;
  - 1.4. TOP 10;
  - 1.5. Hazardous Products;
  - 1.6. Regulatory Standards;
  - 1.7. NORMAM (Direct translation, might be a specific regulation or manual);
  - 1.8. Brazilian Legislation;
  - 1.9. National and International Agencies;
  - 1.10. Why study?
  - 1.11. When Something Goes Wrong;
  - 1.12. Safety Alerts.
- 2. Hazardous Materials**
  - 2.1. Definition;
  - 2.2. Concepts;
  - 2.3. Evolution of Chemistry;
  - 2.4. Conceptual Difference;
  - 2.5. Hazardous Loads;
  - 2.6. Hazardous Products;
  - 2.7. Hazardous Load and Product.
- 3. Regulatory Standards**
  - 3.1. Standards Used for Consultation.
- 4. Globally Harmonized System - GHS**
  - 4.1. Concept;
  - 4.2. Creation;
  - 4.3. Motivation;
  - 4.4. Objective;
  - 4.5. Bases for Development;
  - 4.6. Symbolism;
  - 4.7. Pictograms;
  - 4.8. Application;
  - 4.9. Benefits;
  - 4.10. Purple Book;
  - 4.11. Application;
  - 4.12. Classification;
  - 4.13. Classification – Physical Hazards;
  - 4.14. Classification – Health Hazards;
  - 4.15. Classification – Environmental Hazards;
  - 4.16. Risk Classification.
- 5. Safety Data Sheet**
  - 5.1. Employer's Responsibility;
  - 5.2. Employee's Responsibility;
  - 5.3. Content;
  - 5.4. ABNT NBR 14725-4 (specific Brazilian standard);
  - 5.5. CAS Number;
  - 5.6. Regulatory Standard 09;
  - 5.7. NFPA 471;
  - 5.8. States of Matter;
  - 5.9. Odor and Odor Threshold;
  - 5.10. pH Definition;
- 6. Temperature – Phase Changes**
  - 6.1. Temperature Points;
  - 6.2. Evaporation Rate;
  - 6.3. Flammability Limit;
  - 6.4. Vapor Pressure;
  - 6.5. Vapor Density;
  - 6.6. Density;
  - 6.7. Solubility;
  - 6.8. Partition Coefficient.
- 7. Labels**
  - 7.1. ABNT NBR 14725-3;
  - 7.2. European Union (EU) Label;
  - 7.3. Canadian Label;

- 7.4. GHS Label.
8. **Globally Harmonized System - GHS**
    - 8.1. Labeling Pictograms;
    - 8.2. ABNT NBR 14725-3.
  9. **Hommel Diamond**
    - 9.1. ABNT NBR 14725-3;
    - 9.2. NFPA 704.
  10. **Modes of Transport**
    - 10.1. Incidents;
    - 10.2. Origin;
  11. **Land Mode**
    - 11.1. Resolution nº 5.232/2016 ANTT (specific Brazilian resolution);
    - 11.2. UN Numbers;
    - 11.3. Radioactive Materials;
    - 11.4. CNEN-NE-5.01 - NRM 501 (specific regulation);
    - 11.5. Solid Waste;
    - 11.6. Multiple Risks;
    - 11.7. ABNT NBR 7500;
    - 11.8. Safety Panels;
    - 11.9. Safety Panels - ABNT NBR 7500;
    - 11.10. ABNT NBR 14619.
  12. **Waterway Mode**
    - 12.1. Used Standards;
    - 12.2. NORMAM;
    - 12.3. MARPOL 73/78;
    - 12.4. INF Code;
    - 12.5. CNEN;
    - 12.6. MFAG;
    - 12.7. EmS Guide;
    - 12.8. IMDG;
    - 12.9. SOLAS;
    - 12.10. MARPOL;
    - 12.11. IMDG and ANTT;
    - 12.12. Identification.
  13. **Air Mode**
    - 13.1. Used Standards;
    - 13.2. ANAC (Brazilian National Civil Aviation Agency).
  14. **Modes vs. GHS**
  15. **Packaging**
    - 15.1. Decree;
    - 15.2. Marking;
    - 15.3. Resolution nº 5.232/2016 ANTT;
    - 15.4. Packaging Groups;
    - 15.5. CNEN.
  16. **Safety and Health at Work with Flammables and Fuels**
    - 16.1. Port Safety Requirements;
    - 16.2. Regulation of the Port Facility, in Particular, Quantity Limitation;
    - 16.3. Examples.
    - 16.4. Mutual Aid Plan - PAM
  17. **What Should I Do?**
    - 17.1. Basic First Aid Concepts
  18. **Summary**

## **COURSE DESIGN:**

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**TOTAL:** 08 hours

## **PREREQUISITE(S):**

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None.

## **MINIMUM / MAXIMUM NUMBER OF DELEGATES**

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This course requires a minimum of 1, and a maximum of 15 participants.

To offshore trainings, the course number of attendees will comply with the vessels/rig necessity.

## **MAIN SAFETY ISSUES:**

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- Read MSDS and Hommel diamond;
- Identification labels;
- Knowledge of compatible materials;
- Handling and storage of cylinders;
- Emergency procedures.

**REQUIRED EQUIPMENT FOR THE CLASS:**

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- MSDS;
- Chemicals Storage;
- Internals procedures to handling hazardous materials.

**CERTIFICATION:**

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Training certificate signed by responsible Engineer accredited by Brazilian CREA.

**CERTIFICATE VALIDITY PERIOD:**

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Recommended: 2 years