Overview of international framework and standards related to transport, storage and handling of dangerous goods

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Outline

• Putting Chemical Safety Management in Context
• Regulatory Frameworks
• Programmes
• Tools
Chemical Safety Management in Context

Sound management of transport and storage of chemicals is crucial
Putting Chemical Safety Management in Context

→ Sound management of transport and storage of chemicals is crucial
→ Risks of accidents might create adverse effects for health, environment, and the economy (country and company)

Legal approaches (international, national) → mandatory
Guidance, Programs (international, national) → support
Tools (international, national) → support
Management at company level (individual) → creates results
• Legal Approaches

Regulatory Framework in “Countries of origin”:

- Rotterdam Convention (PIC)
- REACH
- ADR
- GHS (CLP)

Regulations in Ghana: introduced by colleagues from Ghana
Globally Harmonized System of **classification and labelling** of chemicals

- **comprehensive tool** that harmonises:
  - **Classification**: defining and classifying hazards of chemical substances and mixtures
  - **Hazard communication**:
    - Labelling (hazard pictograms)
    - Safety Data Sheets (SDS)

- **target audiences**:
  - Consumers
  - Workers, including transport workers
  - Emergency responders
Many different systems existed worldwide, with differing requirements:

- Vary in hazards covered and classification criteria used
- Information required on labels and Safety Data Sheets varied (SDS)

Result: disparity in the information provided
- Conflicting and inconsistent classifications and safety information (labelling and safety data sheets)
GHS Background

- The GHS has been developed by the United Nations as a non-binding treaty for UN member countries (2003)
  - international mandate: Agenda 21(1992), Chapter 19, Programme Area B, paras. 26 and 27

- Not a formal treaty, but instead a non-legally binding international agreement
  - provides the basis for harmonising regulations on chemicals at national, regional and worldwide level
  - the underlying infrastructure for establishment of national, comprehensive chemical safety programmes
GHS Implementation

[Map of the world showing the implementation status of GHS across different countries and regions.]

- Countries/regions that have already implemented GHS.
- Countries/regions where GHS is voluntary.
- Countries/regions that are in the process of implementing GHS.
- Countries/regions where GHS is not implemented or not available.

Source: DHI Denmark
Regional:
• UNECE Convention on Transboundary Effects of Industrial Accidents takes further steps towards alignment with the GHS and the improvement of industrial safety in the region

Country:
• In USA implemented through a revised Hazard Communication Standard (HCS) (March 2012) and is becoming mandatory from 1 June 2015
• In Europe implemented through CLP Regulation (Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures)
• Canada has started and has set goals for completion in 2015
• Australia, China, Japan and New Zealand have completed the main stages of Implementation

Harmonised hazard communication (labelling) worldwide!
UN Model Regulation

UN Recommendation on the Transport of Dangerous Goods, Model Regulation has 7 parts including:

- Scope, application, training, security
- Classification & identification of dangerous goods
- Packing conditions (packaging and tank construction standards)
- Consignment procedures
- Operational provisions (general and mode specific): segregation of goods, loading, stowage, storage, decontamination requirements, reporting of accidents/incidents...

9 classes in total, some of which are:

1. Explosive
2. Gases
3. Flammable liquids
4. Flammable solids
5. Oxidizing substances
6. Poisonous substances
7. Infectious substances
8. Corrosive substances
9. Other dangerous goods
Example of combined GHS & ADR on single packaging

- Proper shipping name and UN number
- Transport labels
- Chemical name and product identifier
- Pictograms and signal word
- Hazard and precautionary statements

Methanol UN1230

XYZ Chemicals
High Street
New Town
0987 654 321

Methanol 605-001-00-X

Highly flammable liquid and vapour. Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled. Causes damage to organs. Keep away from heat/sparks/open flames/hot surfaces – No smoking. Do not breathe mist/vapours/spray. Wear protective gloves/protective clothing/eye protection. IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Store in a well-ventilated place. Keep container tightly closed.
International Standards and Voluntary Initiatives

• International Cyanide Management Code (ICMI)
• SAICM
• Responsible Care
• Safer Production
• Emergency Response Initiatives:
  – Emergency Response Intervention Cards (cefic)
  – CHEMTREC
  – 2012 ERG
SAICM is a global policy framework to support efforts to achieve:

“By 2020, chemicals are produced and used in ways that lead to the minimization of significant adverse effects on human health and the environment”
SAICM aims to coordinate, catalyse and facilitate.

• very broad scope (entire life cycle of product);
• emphasis on the sound management of chemicals as a sustainable development issue;
• multi-stakeholder and multi-sectoral character;
• Integrated approach: Quick Start Programme, Economic instruments, industry participation, technical expertise...
Guidance for national policy development for chemical accident prevention and preparedness

Local level and preparedness for environmental emergencies

Prevention of chemical accidents promoting risk communication along the value chain - aimed primarily at SMEs - sectoral approach
Flexible Framework Initiative in the Global Context

Builds on 30 years of international experience

- **International Conventions** (e.g., ILO 174, UNECE TEIA)
- **International programmes** (e.g. OECD's chemical accidents programme)
- **Legal instruments** (US RMP, European Seveso directive)
- **International guidance** (e.g. OECD Guiding principles)

- Prevention of accidents
- Preparedness for accidents
- Elements of CAPP programmes
Responsible Care (ICCA)

Responsible care is a Global Chemical Management system with accountability from “cradle-to-grave”:

- Emergency Response & Preparedness
- Pollution Prevention/Environmental Protection
- Process Safety
- Employee Safety
- Security (facility, value chain, cyber)
- Product Stewardship
- Community/Stakeholder Dialogue

⇒ Access to best-practice examples and guidance
Response: Emergency Response Intervention Cards

Provide guidance on initial actions for emergency responders at the scene of a chemical transport accident

- Characteristics
- Hazards
- Personal protection
- Intervention actions
  - General
  - Spillage
  - (involving the substance)
- First aid
- Essential precautions for product recovery
- Precautions after intervention
  - Undressing
  - Equipment clean-up
Response: Emergency Response Guidebook

2012 EMERGENCY RESPONSE GUIDEBOOK

A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/ Hazardous Materials Transportation Incident

GUIDE 153

SUBSTANCES - TOXIC AND/OR CORROSIVE (COMBUSTIBLE)

ERG2012

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Combustible material: may be ignited by an explosion or an electric spark.
- When heated, vapors may form an explosive mixture.
- Those substances designated as “explosive” or “flammable” are considered to be hazardous.
- If the exposed substance is not a hazardous material, contact your local authorities.
- If the exposed substance is hazardous, contact the local emergency services.
- Evacuate the area immediately.
- Ventilate the area.
- Call the emergency response center.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus.
- Wear chemical protective clothing if no thermal protection is available.
- Structural firefighters: wear protective clothing in case of spill situations.

EVACUATION

- Spill: See Table 1 - Initial isolation and emergency protocols.
- Fire: If you suspect a fire, call 911 or emergency medical services.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Thank You