

WE don't use chemicals: or do we?

Philippa Nobbs
Safety and Technical Services

Workshop plan

- *Introduction and background*
- *Setting the scene – some definitions*
- *Information is key*
- *Good working practices*
- *Dealing with emergencies*
- *Finding the way through a Safety Data Sheet*

What is a chemical?

- *A chemical is any substance consisting of matter :*
 - *liquid, solid or gas*
 - *pure substance or mixture*
 - *naturally occurring or manufactured*

What , in the universe, is not a chemical?

- *energy*
- *thoughts*
- *dreams*
- *gravity*

How chemicals are used

First step:

Selection , ordering, receipt

Then:

Storage

Transportation

Preparation for use

Process

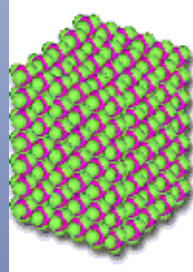
Disposal

What is meant by 'hazardous'?

- *Something that can cause a physical or health risk to people, property or the environment*
 - *Damage*
 - *Illness*
 - *Incapacity/long-term effect*
 - *Destruction*
 - *Death*

Hazardous materials

Solid

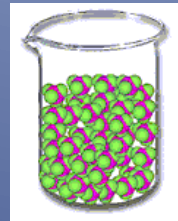


lump



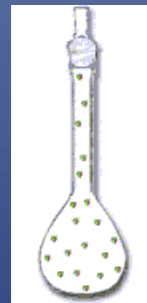
powder

Liquid



evaporates

Gas



hazardous

displaces oxygen

Classification of Chemicals

- *a logical and comprehensive approach to defining health, physical and environmental hazards of chemicals*
- *Must be based on accurate, robust and adequate data / information*

Hazard categories

- *Explosive*
- *Flammable liquids, solids, self reactive substances and substances dangerous when wet*
- *Oxidising substances and organic peroxides*
- *Compressed gases*
- *Toxic substances*
- *Corrosive substances*
- *Sensitisers*
- *Carcinogen, Mutagen, Reprotoxin*
- *Environmental*

Components of a label

For white spirit:

Signal word -
DANGER - relating to the most serious hazard. In this example, the hazard statements show that it refers to the *Health hazards* symbol.

Hazard statements

Precautionary statements

Hazard symbols

Contains: Naphtha (petroleum)
hydrodesulfurized heavy EC No 265-185-4
DANGER: May be fatal if swallowed and enters airway. May cause drowsiness and dizziness. Repeated exposure may cause skin dryness or cracking. Flammable liquid and vapour. Toxic to aquatic life with long lasting effects. Read label before use. Keep out of reach of children. Keep away from sparks/open flames - No Smoking. Do not breathe vapours. Do not get in eyes, on skin or on clothing.
If SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Do NOT induce vomiting.
If INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing. If ON SKIN: Wash with plenty of soap and water. If medical advice is needed, have product container or label at hand. Dispose of contents/container to hazardous waste collection point.

CHIP Hazard symbols

Physico-chemical



Health

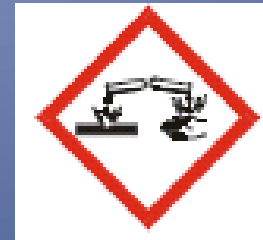


Environment



GHS Pictograms

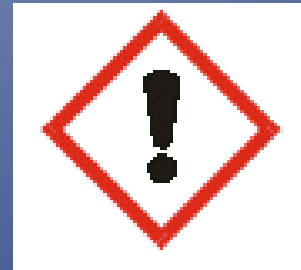
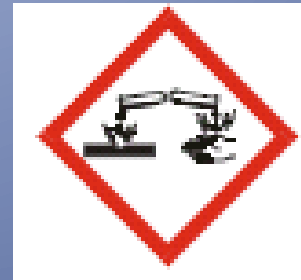
Physicochemical



DANGER or WARNING

GHS Pictograms

Health



DANGER or WARNING

GHS Pictograms

Environment



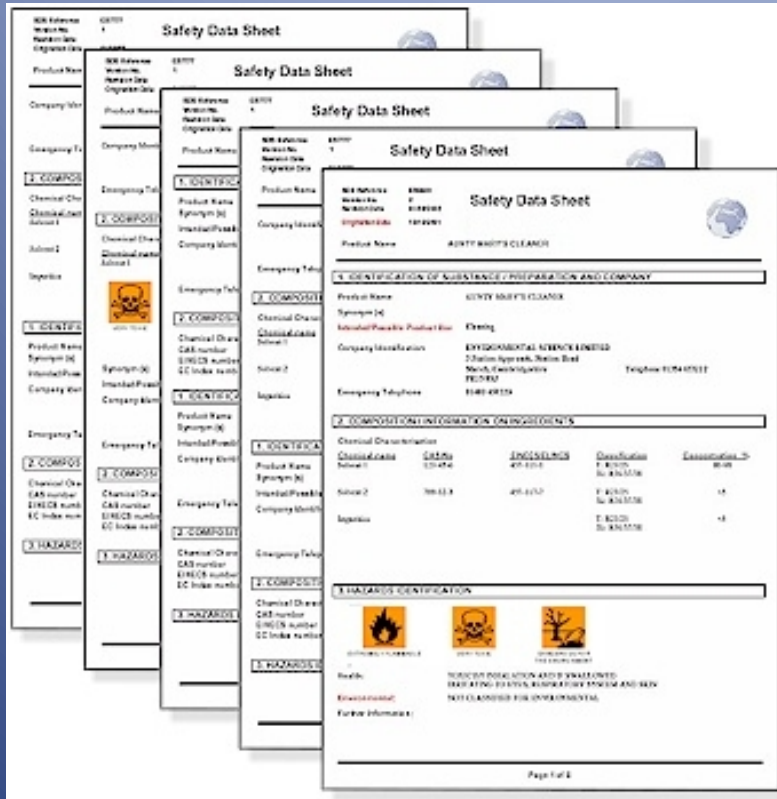
WARNING

Hazard Statements

For example:

- *Flammable liquid and vapour*
- *May be corrosive to metals*
- *May cause an allergic skin reaction*
- *May cause allergy or asthma symptoms or breathing difficulties if inhaled*
- *Fatal if swallowed*

Safety Data Sheets



What are they?

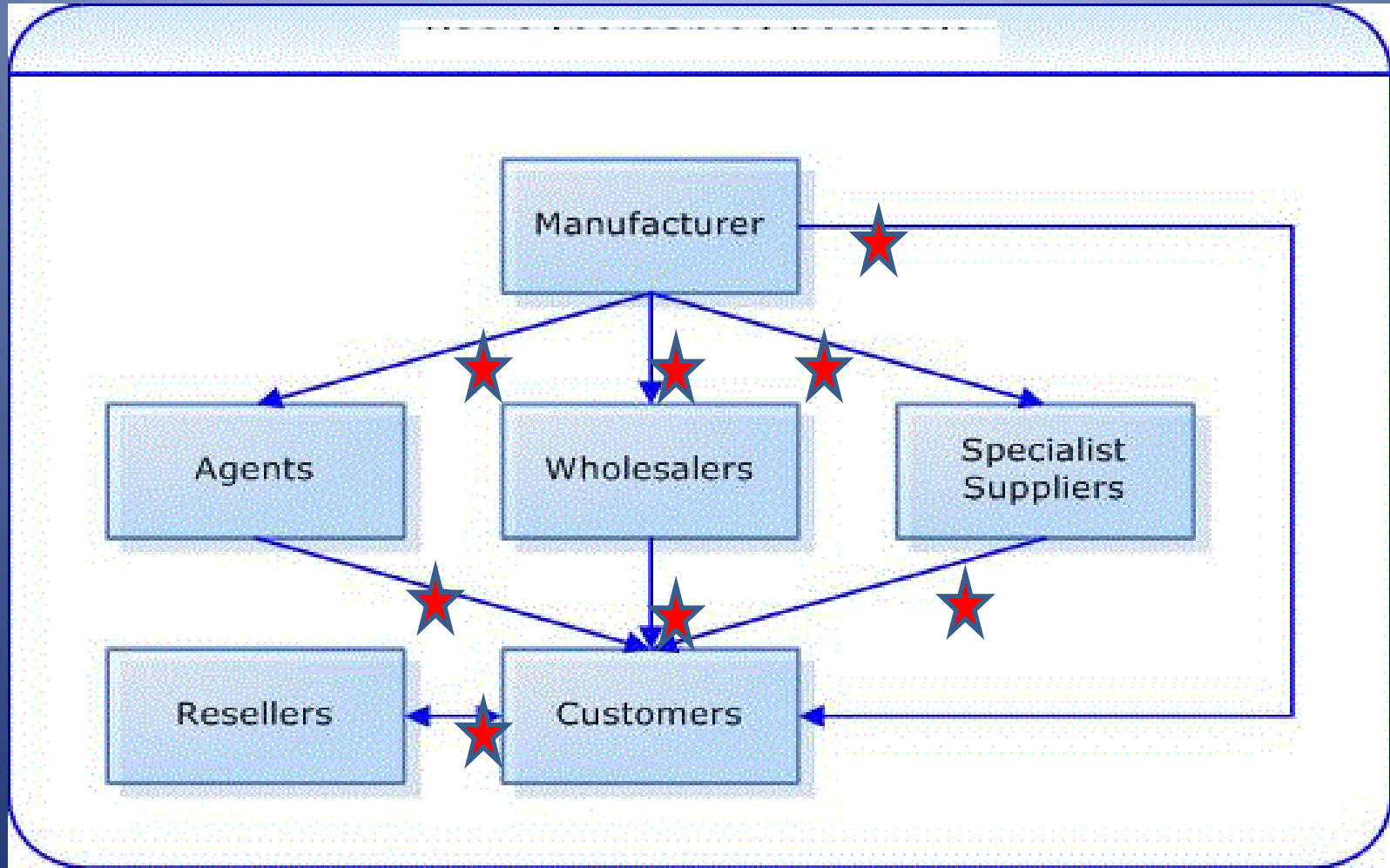
Where do they come from?

What are they for?

Safety Data Sheets should:

- *provide essential information on the intrinsic hazards and other properties of a product that, when considered together with the manner in which the product is to be used, can be used to assess risks to users, people who may be affected by the activity and to the environment*

Chemicals Supply Chain



★ Where SDS should be supplied

Uses of a Safety Data Sheet

- *User safety*
- *Storage*
- *Engineering controls*
- *Emergency action*
- *Pollution control*
- *Transport information*
- *Waste disposal*
- *Classification information*

Safety Data Sheet

16 sections, including:

- 2. Hazards identification*
- 4. First-aid measures*
- 5. Fire fighting measures*
- 6. Accidental release measures*
- 7. Handling and storage*
- 8. Exposure controls/personal protection*
- 10. Stability and reactivity*
- 13. Disposal considerations*

Safety Data Sheet

48 obligatory sub-headings, e.g.

Under SECTION 4: First aid measures

4.1. Description of first aid measures

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

Good working practice

- *Know about the material*
- *Be prepared for emergencies*
- *Follow instructions*
- *Use appropriate quantities*
- *Replace the top as soon as possible*
- *Don't use unsuitable containers*
- *Don't put it down the drain*

Good working practice

- *Take care when*
 - *Pouring*
 - *Carrying*
 - *Mixing*
 - *Disposing (product and empty containers)*

Control measures

- *Eliminate*
- *Substitute*
- *Contain*
- *Alter*
- ***PPE***
- *Education and training*
- *Supervision*



Control measures

- *Level 1 - general ventilation*
e.g. open window, extractor fan
- *Level 2 - engineering controls*
e.g. fume cupboard, point-of-use extractor
- *Level 3 - containment*
e.g. glove box, enclosed booth
- *Level 4 - PPE*

Personal Protective Equipment

Eye
protection



Gloves



Respiratory
protection



A proportionate response?



**Sodium
chloride**

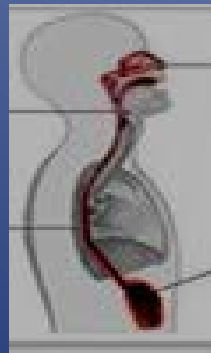
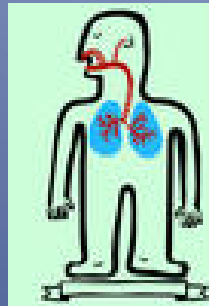


Dealing with Chemical Emergencies

- *Be prepared*
 - *Emergency contacts*
 - *Location of spill kit*
 - *How to deal with specific chemicals*
 - *Emergency aid actions*
 - *Communicate with First Aider / medical professionals*

Don't make things worse!

Emergency aid



Dealing with spills

- *Evaluate the risks*
 - *human health effects*
 - *physical damage to property*
 - *environmental threats*
- *Evaluate quantities*
- *Evaluate potential impacts*

Cleaning Up Simple Spills

- *Prevent the spread of dusts and vapours*
- *Neutralise acids and bases, if possible*
- *Control the spread of the liquid*
- *Absorb the liquid*
- *Collect and contain the clean-up residues*
- *Dispose of the wastes*
- *Decontaminate the area and affected equipment*

Be aware if special precautions are required

Sources of additional information

1. YOUR SUPPLIER

2. *European Chemical Agency*

<http://echa.europa.eu/information-on-chemicals/registered-substances>

3. *Other users/practitioners*

4. *Internet search (with care)*

Any questions?