Medical Sciences Division
(Clinical Departments)

GUIDANCE ON THE GLOBAL HARMONISED SYSTEM

Worldwide there are many different systems for classifying and labelling chemicals. Consequently, the same substance may be classified at the same time as toxic, non-hazardous or harmful to health – depending in which country the classification has been made. To harmonise these different systems the UN has developed the Global Harmonised System of Classification and Labelling of Chemicals (GHS).

GHS introduces a set of globally harmonised criteria for the classification of physical, health and environmental hazards.

GHS also establishes a globally harmonised scheme for hazard communication. This includes the introduction and modification of:

- Hazard classifications
- Hazard pictograms
- Signal words
- Hazard statements

The European Union (EU) has adopted GHS and will implement it in member states as an EU Regulation; the Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulations.

Hazard Classification

GHS introduces a global system for the classification of chemical hazards. This may result in a change of hazard for certain chemicals under present classification regulations.

The level of protection and warning offered to workers, consumers and the environment should not be reduced as a result of harmonising the classification and labelling systems.

Hazard Pictograms

Under GHS the square orange hazard pictograms are to be replaced by pictograms in a red diamond. A number of the symbols shall remain the same to warn of a given hazard, such as explosive, oxidising, flammable and corrosive. New symbols will also be introduced under the scheme for substances with acute and chronic toxicity.

Appendix 1 shows a comparison between old and new pictograms.

Signal Words

GHS will introduce two signal words to all labels to indicate the level of severity of the hazard. Danger is to be used for the more severe hazard categories, whilst Warning is to be used for the less severe.

Hazard Statements and Precautionary Statements
Hazard statements will be assigned to a hazard class and category to describe the nature and where appropriate the degree of the hazard. The statements will replace the old system of Risk Phrases.

The codes will be in the form '*Hnxx*' where *H* stands for "hazard statement"; *n* stands for the type of hazard: 2 for physical hazards, 3 for health hazards and 4 for environmental hazards; and *xx* is a sequential numbering scheme.

For example, a safety data sheet or label may bear a statement such as "May be corrosive to metals (*H290*)". *H* indicates a Hazard, the *2* indicates a physical hazard, and *90* is part of the numbering scheme.

The CLP Regs have retained numerical risk phrases which do not have an equivalent under GHS, as well as some intended for use in very specific circumstances, the codes for which are identified by *EUHxxx*.

A list of Hazard Statements are given in Appendix 2.

Precautionary statements will replace the existing safety phrases, and will provide further information on recommended precautions to be taken when using or storing the chemical.

Time Scale
The CLP Regulations provide a transition period to allow a gradual migration from the existing system to the new regime. The Regulations will apply to the classification of substances from 1st December 2010 and to the classification of mixtures from 1 June 2015. The transitional period will end on 1st June 2015 when the CLP Regulation enters fully into force. Some suppliers, such as Merck, have already starting adding CLP classification to their labelling.

Actions for Departments
Departments should update their risk assessments to reflect changes in classification and hazard statements as and when they receive chemicals with the new GHS classification and labels.

COSHH assessments must also be reviewed if there is a significant change (i.e. a change in the substance or the form of a substance used, a change in work practices, where results of health surveillance have identified work-related ill health, where there is new information on the health effects of exposure to a substance) or at least every 5 years.

Appendix 1 – New GHS Hazard Pictograms

Old Hazard Pictograms	New GHS Pictograms	Hazard Classes
		Explosive Self Reactive Organic Peroxide
		Flammable Gases Flammable Aerosols Flammable Liquids Flammable Solids Pyrophoric Self-Reactive Self-Heating Contact with water, emits flammable gas Organic peroxide
		Oxidizing gases Oxidizing liquids Oxidizing solids
		Acute toxicity Very toxic (Fatal) Toxic
		Respiratory sensitiser Mutagen Carcinogen Reproductive toxicity Systemic Target Organ Toxicity Aspiration hazard
		Corrosive (causes severe skin burns and eye damage) Serious eye damage Corrosive to metals
		Harmful Skin irritation, Serious eye irritation, Respiratory irritant Skin sensitiser Narcotic
		Environmental Toxicity Acute Hazard Chronic Hazard
		Gases under pressure

Appendix 2

Physical Hazards

Hazard Statement Code	**Hazard Statement**
H200	Unstable explosive
H201	Explosive; mass explosion hazard
H202	Explosive; severe projection hazard
H203	Explosive; fire, blast or projection hazard
H204	Fire or projection hazard
H205	May mass explode in fire
H220	Extremely flammable gas
H221	Flammable gas
H222	Extremely flammable material
H223	Flammable material
H224	Extremely flammable liquid and vapour
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H227	Combustible liquid
H228	Flammable solid
H240	Heating may cause an explosion
H241	Heating may cause a fire or explosion
H242	Heating may cause a fire
H250	Catches fire spontaneously if exposed to air
H251	Self-heating; may catch fire
H252	Self-heating in large quantities; may catch fire
H260	In contact with water releases flammable gases which may ignite spontaneously
H261	In contact with water releases flammable gas
H270	May cause or intensify fire; oxidizer
H271	May cause fire or explosion; strong oxidizer
H272	May intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H281	Contains refrigerated gas; may cause cryogenic burns or injury
H290	May be corrosive to metals

Hazard Statement Code	Hazard Statement
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H303	May be harmful if swallowed
H304	May be fatal if swallowed and enters airways
H305	May be harmful if swallowed and enters airways
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H313	May be harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H316	Causes mild skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H320	Causes eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H333	May be harmful if inhaled
H334	May cause allergy or asthma symptoms of breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H361	Suspected of damaging fertility or the unborn child
H362	May cause harm to breast-fed children
H370	Causes damage to organs
H371	May cause damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure

Environmental Hazards

Hazard Statement Code	Hazard Statement
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

EU Specific Hazard Statements

Hazard Statement Code	Hazard Statement
EUH001	Explosive when dry
EUH006	Explosive with or without contact with air
EUH014	Reacts violently with water
EUH018	In use may form flammable/explosive vapour-air mixture
EUH019	May form explosive peroxides
EUH044	Risk of explosion if heated under confinement
EUH029	Contact with water liberates toxic gas
EUH031	Contact with acids liberates toxic gas
EUH032	Contact with acids liberates very toxic gas
EUH066	Repeated exposure may cause skin dryness or cracking
EUH070	Toxic by eye contact
EUH071	Corrosive to the respiratory tract
EUH059	Hazardous to the ozone layer