

**Solvent Industry Association.
Guidance Note 55.
A Brief Over-view of the Classification, Labelling and Packaging (CLP)
System with respect to the Globally Harmonised System (GHS).**

The products sold by member companies of the SIA are, in the main, hydrocarbons and oxy-hydrocarbons. By far the most important hazard they exhibit is flammability, therefore many of them are classified as *Flammable Liquids*. Other classes of hazards that may be exhibited by these products include Skin or Eye Irritation, Acute Toxicity (especially the “Harmful” of the UK’s “CHIP” Regulations), Respiratory or Skin Sensitisation, Aspiration Hazard and Environmental Hazards.

This over-view describes briefly on some aspects of what may be expected in the new regulations. More emphasis is placed on Flammable Liquids, but other hazards are still referred to below.

All chemical hazards and their classifications are described in detail in Annex I of the CLP regulations.

(a) Classification of Flammable Liquids

The EU’s CLP Regulations are based on GHS, but there are some major differences.

For example, and of significance to the SIA, the GHS definition of a *Flammable Liquid* is a liquid having a flash point of not more than 93°C, whereas in CLP the upper limit is 60°C.

This upper threshold of 60°C is the same as that now applied in the UK Carriage Regulations, based on ADR, and in the global IMDG code.

The CLP and the CHIP Regulations both have three categories within the class Flammable Liquids. Though broadly similar, there are important differences:

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	NAME and CRITERIA of CATEGORY	
Severity of Category	CLP	CHIP
Highest	Category 1: Flash point < 23°C and initial boiling point ≤ 35°C	Extremely Flammable: Flash point < 0°C and initial boiling point ≤ 35°C
Medium	Category 2: Flash point < 23°C and initial boiling point > 35°C	Highly Flammable: Flash point < 21°C and not classified as Extremely Flammable
Lowest	Category 3: Flash point ≥ 23°C and ≤ 60°C	Flammable: Flash point ≥ 21°C and ≤ 55°C

The description of the label elements bears many similarities to CHIP, but it is the differences that are important.




Where CHIP uses R (for Risk) and S (Safety) phrases, which are drawn from master lists approved by the EU authorities, CLP employs a more complex system of phrasing. Thankfully, though, the wording on very many phrases is unchanged from CHIP to CLP.

The label elements under CLP are summarised in the following table, which may be found in section 2.6 of Annex I of CLP. The abbreviations “H” and “P”, followed by a number, stand for Hazard and Precautionary phrases respectively. Those phrases of interest to the SIA are listed at the end of this document.

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Label elements for flammable liquids

Classification	Category 1	Category 2	Category 3
GHS Pictograms			
Signal word	Danger	Danger	Warning
Hazard statement	H224: Extremely flammable liquid and vapour	H225: Highly flammable liquid and vapour	H226: Flammable liquid and vapour
Precautionary Statement - Prevention	P210 P233 P240 P241 P242 P243 P280	P210 P233 P240 P241 P242 P243 P280	P210 P233 P240 P241 P242 P243 P280
Precautionary Statement – Response	P303 + P361 + P353 P370 + P378	P303 + P361 + P353 P370 + P378	P303 + P361 + P353 P370 + P378
Precautionary Statement – Storage	P403 + P235	P403 + P235	P403 + P235
Precautionary Statement - Disposal	P501	P501	P501

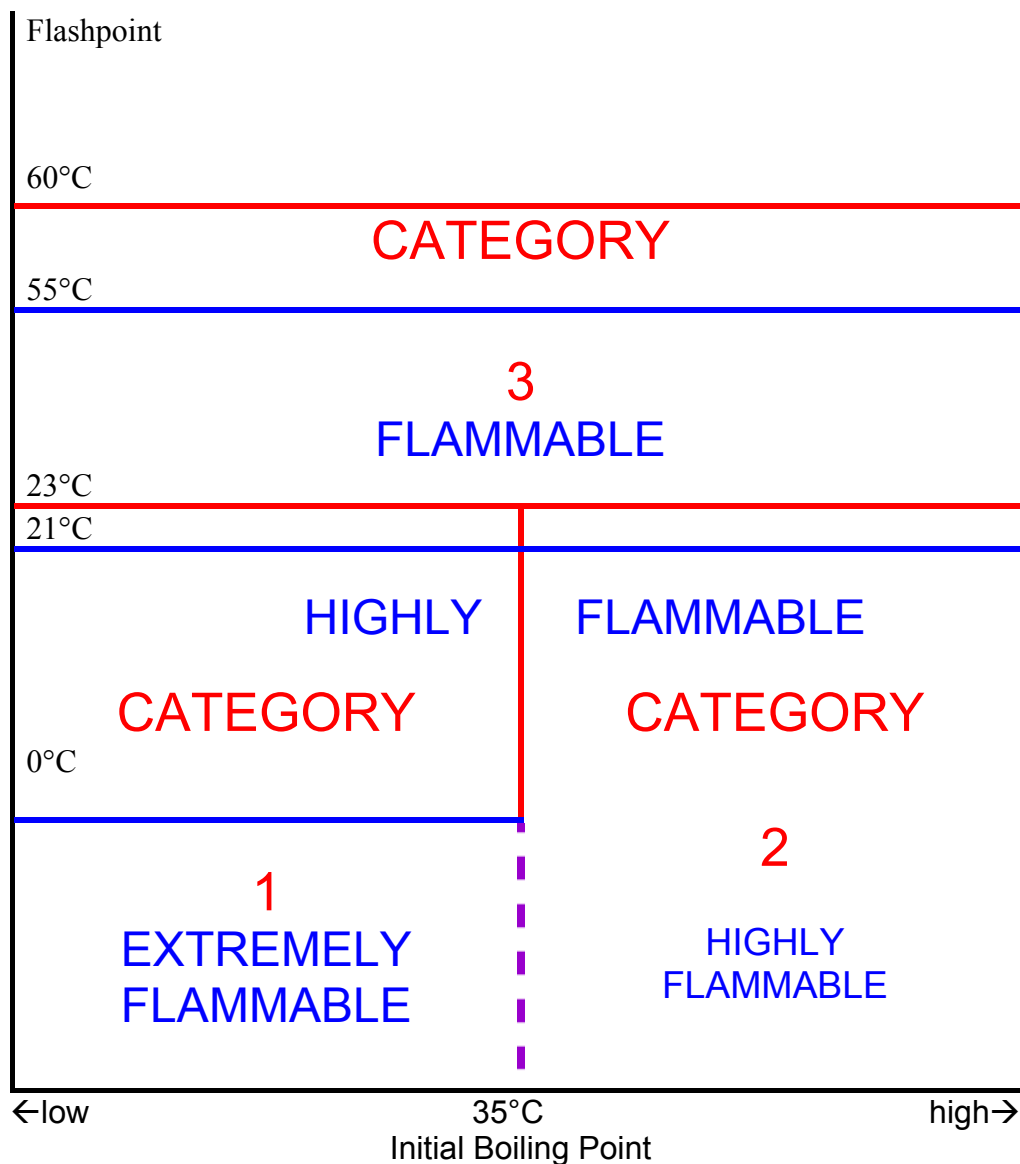
The sub-categories of phrases, e.g. “Precautionary Statement – Prevention”, and the listings of the phrases themselves may be found in Annexes III and IV of CLP. Some phrases are made up by combining part-phrases into a complete phrase, e.g. “P403 + P235” means “Store in a well-ventilated place [P403] Keep cool [235]”.

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The boundaries of Flammability in CHIP and in CLP

The table below compares the CLP categories of Flammable Liquid with those of CHIP, based on flash point and initial boiling point. The Hazard categories from CLP are written in **red** and are bounded by **red lines**. Hazard categories from “CHIP” are in **blue**, and bounded by **blue lines**. The dotted line in **purple** is both a red *and* a blue boundary.



First Issue: 4th August 2008. Last Revised: 4th August 2008.

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(b) Classifications of Some Other Hazards

The change from “CHIP” to CLP rules of classification is more complicated for the Health and Environmental hazards than for Flammability. No attempt is made here to cover the range of hazards that may apply to Solvents.

Below is a selection of just some of the label elements that could be applicable to the hazards that are usually associated with solvents:

Hazard: Skin Irritation


Classification	Category 2 (of 2)
GHS Pictograms	
Signal word	Warning
Hazard statement	H315: Causes skin irritation
Precautionary statement prevention	P264 P280
Precautionary statement response	P302 + P352 PP321 PP332 + P313 P362
Precautionary statement storage	
Precautionary statement disposal	

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Hazard: Acute Toxicity by Inhalation

(roughly equivalent to CHIP's "Harmful")

Classification	Category 4 [of 4]
GHS Pictograms	
Signal word	Warning
- Inhalation (see Note 1)	H332: Harmful if inhaled
Precautionary statement prevention (inhalation)	P261 P271
Precautionary statement response (inhalation)	P304 + P340 P312
Precautionary statement storage (inhalation)	
Precautionary statement disposal (inhalation)	

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Hazard: Respiratory or Skin Sensitisation

Classification	Respiratory sensitisation Category 1	Skin sensitisation Category 1
GHS Pictograms		
Signal Word	Danger	Warning
Hazard Statement	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	H317: May cause an allergic skin reaction
Precautionary statement prevention	P261 P285	P261 P272 P280
Precautionary statement response	P304 + P341 P342+ P311	P302 + P352 P333 + P313 P321 P363
Precautionary statement storage		
Precautionary statement disposal	P501	P501


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Hazard: Aspiration Hazard

Classification	Category 1
GHS Pictogram	
Signal word	Danger
Hazard statement	H304: May be fatal if swallowed and enters airways
Precautionary Statement prevention	
Precautionary Statement Response	P301 + P310 P331
Precautionary Statement Storage	P405
Precautionary Statement Disposal	P501


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Hazard: Hazardous to the Aquatic Environment

ACUTE	
	Category 1
GHS Pictogram	
Signal word	Warning
Hazard Statement	H400: Very toxic to aquatic life
Precautionary Statement Prevention	P273
Precautionary Statement Response	P391
Precautionary Statement Storage	
Precautionary Statement Disposal	P501

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List of Hazard (“H”) and Precautionary (“P”) Phrases of Interest to the SIA

Code	Hazard statements for physical hazards
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 aerosol
H223	Flammable aerosol
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

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Code	Hazard statements for health hazards
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 or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H341	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H350	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H360	May damage fertility or the unborn child (state specific effect if known (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

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H361	Suspected of damaging fertility or the unborn child (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H362	May cause harm to breast-fed children
H370	Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H371	May cause damage to organs (or state all organs affected, if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H372	Causes damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H373	May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

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Code	Response precautionary statements
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P211	Do not spray on an open flame or other ignition source.
P220	Keep/Store away from clothing/.../combustible materials.
P221	Take any precaution to avoid mixing with combustibles/...
P222	Do not allow contact with air.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P230	Keep wetted with ...
P231	Handle under inert gas.
P232	Protect from moisture.
P233	Keep container tightly closed.
P234	Keep only in original container.
P235	Keep cool.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/.../equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P244	Keep reduction valves free from grease and oil.
P250	Do not subject to grinding/shock/.../friction.
P251	Pressurized container: Do not pierce or burn, even after use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P262	Do not get in eyes, on skin, or on clothing.
P263	Avoid contact during pregnancy/while nursing.
P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P282	Wear cold insulating gloves/face shield/eye protection.
P283	Wear fire/flame resistant/retardant clothing.
P284	Wear respiratory protection.
P285	In case of inadequate ventilation wear respiratory protection.
P231+232	Handle under inert gas. Protect from moisture.
P235+410	Keep cool. Protect from sunlight.

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