

PRACTICAL INFORMATION 1

Globally harmonized system (GHS) in the EU
the new classification and labeling in accordance with CLP regulation (EG) No. 1272/2008

- ◆ Became valid on January 20, 2009.
- ◆ It regulates classification, labeling and packaging of substances and mixtures
- ◆ CLP = Regulation on **C**lassification, **L**abelling and **P**ackaging of substances and mixtures
- ◆ GHS = **G**lobally **H**armonized **S**ystem
- ◆ Replaces the European guideline of substances 67/548/EWG as well as preparation directive 1999/45/EG










Regulation (EC) No 1272/2008 introduced a single European labeling system based on the Global Harmonized System (GHS). It standardizes the classification and labeling of hazardous substances and their mixtures and aligns them with the dangerous goods transport law ADR / GGVSEB.

The GHS classification distinguishes between danger classes and danger categories. Instead of the 15 risk characteristics, there are now 28 danger classes. The respective danger classes are subdivided into danger categories to indicate the severity of danger. The information is to be supplemented by given

danger warnings (H phrases and EUH phrases), signal words and safety instructions (P phrases).

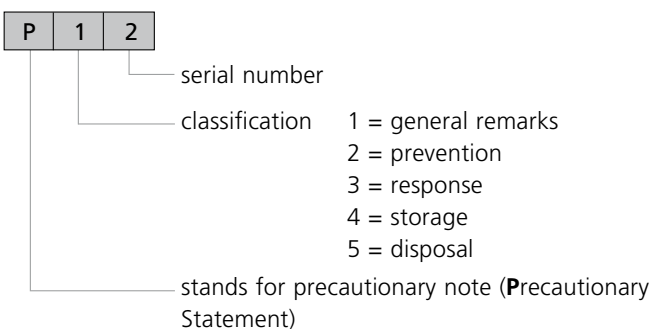
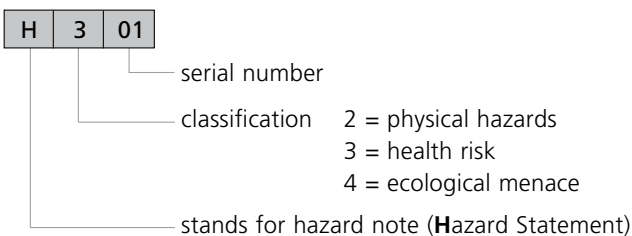
Furthermore, their classification criteria serve as the basis for further legislation based on the hazard classification, such as the 4th and 12th BImSchV for the reorientation of the assignments requiring approval to storage facilities or accident management companies.

The CLP Regulation will be adapted as necessary to the changed needs and continuously revised, currently exists the 17. ATP (Adaptation to the Technical Progress).

GHS 01 exploding bomb	GHS 02 flame	GHS 03 flame over circle	GHS 04 gas cylinder	GHS 05 caustic effect	GHS 06 death's head	GHS 07 exclamation point	GHS 08 health hazard	GHS 09 environment
								

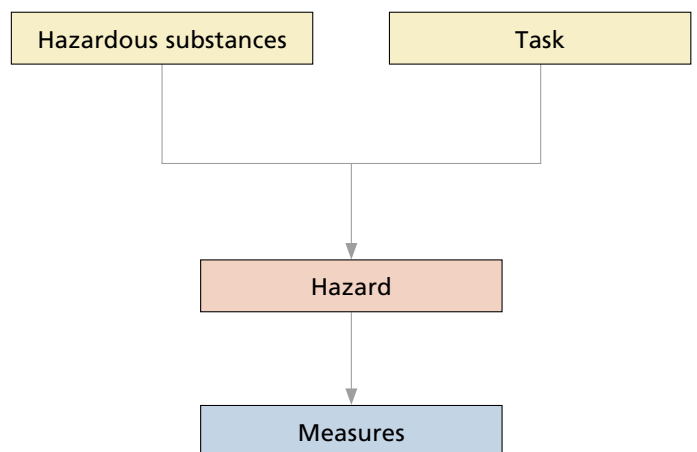
Setup of H- and P-clauses

While the previous R- and S-clauses have been subjected to no particular system, the new hazard (H) and precautionary notes (P) are classified.












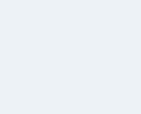








Regulation on hazardous substances (GefStoffV) new 2010!

According to the new regulation on hazardous substances 2010 a near-term adapting to CLP- and REACH-regulation has succeeded. The new regulation on hazardous substances is absolutely hazard-minded. The determination of precautionary measures is exclusively a result of a risk assessment. This can be easily derived from the following chart:














BY COMPARISON: HAZARD SYMBOLS NEW (GHS)¹ AND OLD (EU)

GHS-hazard class and categories ²	Hazard pictograms NEW ³		Hazard symbols OLD	
PHYSICAL HAZARDS	Explosive substances/mixtures • unstable, explosive • explosive, cat. 1.1 - 1.3 Self-reactive substances and mixtures, types A, B Organic peroxides, types A, B	DANGER	 H200 H201, H202, H203 H240, H241 H240, H241	EXPLOSIVE  (R2, R3)
		ATTENTION	 H204	No labeling
	Flammable gases, cat. 1 Flammable aerosols, cat. 1 Flammable liquids, cat. 1	DANGER	 H220 H222 H224	HIGHLY-FLAMMABLE  (R12) (R12) R12
		ATTENTION	 H225 H228 H228	EASILY-FLAMMABLE  R11 (R11) (R11)
	Flammable aerosols, cat. 2 Flammable liquids, cat. 3	ATTENTION	 H223 H226	FLAMMABLE No symbol (R10) R10 No labeling (flash point 56-60°C)
		Pyrophoric liquids, cat. 1 Pyrophoric solids, cat. 1 Substances and mixtures which emit flammable gases upon contact with water, cat. 1, 2 and cat. 3	DANGER	 H250 H250 H260 H261 H261
	ATTENTION		 H241 H242 H242 H251 H252	HIGHLY-FLAMMABLE  R12 R12
	Organic peroxides, type B Organic peroxides, types C, D Organic peroxides, types E, F	ATTENTION	 H241 H242 H242	SUPPORTING COMBUSTION  R7 R7
	Oxidizing gases, cat. 1 Oxidizing liquids, cat. 1, 2 and cat. 3 Oxidizing solids, cat. 1, 2 and cat. 3	DANGER	 H270 H271, H272 H272 H271, H272 H272	SUPPORTING COMBUSTION  R8 R8, R9 R8, R9
		ATTENTION	 H270 H271, H272 H272	
Gases under pressure • solidified gases • liquefied gases • deep-frozen liquefied gases • dissolved gases	ATTENTION	 H280 H280 H281 H280	No labeling	
Substances and mixtures corrosive to metals, cat. 1	ATTENTION	 H290	No labeling	

¹Comparison of risk characteristics (allocation) according to labeling elements, symbol (EU old) and pictogram (GHS).

BY COMPARISON: HAZARD SYMBOLS NEW (GHS)¹ AND OLD (EU)

GHS-hazard class and categories ²	Hazard pictograms NEW ³	Hazard symbols OLD	
HARMFUL TO HEALTH	DANGER	Acute toxicity, cat. 1, 2 • oral • dermal • inhalative H300 H310 H330	VERY TOXIC  R28 R27 R26
		Acute toxicity, cat. 3 • oral • dermal • Inhalativ H301 H311 H331	TOXIC  R25 R24 R23
		Acute toxicity, cat. 4 • oral • dermal • inhalative H302 H312 H332	HARMFUL TO HEALTH  R22 R21 R22
	ATTENTION	Germ cell mutagenicity, cat. 1A, 1B Carcinogenic effect, cat. 1A, 1B Toxic to reproduction effect, cat. 1A, 1B Specific target organ toxicity with single exposition, cat. 1 Specific target organ toxicity with repeated exposition, cat. 1 H340 H350 H360 H370 H372	TOXIC  R46 R45, R49 R60, R61 R39 R48
		Sensitization of the respiratory passages, cat. 1 Danger of aspiration, cat. 1 H334 H304	HARMFUL TO HEALTH  R42 R65
	ATTENTION	Germ cell mutagenicity, cat. 2 Carcinogenic effect, cat. 2 Toxic to reproduction effect, cat. 2 Specific target organ toxicity with single exposition, cat. 2 Specific target organ toxicity with repeated exposition, cat. 2 H341 H351 H361 H371 H373	HARMFUL TO HEALTH  R68 R40 R62, R63 R68 R48
	DANGER	Caustic effect for the skin, cat. 1A, 1B, 1C H314	CAUSTIC  R34, R35
		Severe eye damage, cat. 1 H318	IRRITANT  R41
	ATTENTION	Skin-irritant, cat. 2 Eye-irritant, cat. 2 Sensitization of the skin, cat. 1 Specific target organ toxicity with single exposition, cat. 3 • irritant for respiratory passages H315 H319 H317 H335	IRRITANT  R38 R36 R43 R37
		• narcotic effekt H336	No symbol R67
HAZARDOUS TO THE ENVIRONMENT	ATTENTION	Acute hazard for waters, cat.1 Chronic hazard for waters, cat. 1 H400 H410	HAZARDOUS TO THE ENVIRONMENT  R50 R50/53
		Chronic hazard for waters, cat. 2 H411	 R51/53

²source: annex I of the regulation (EG) no. 1272/2008.

³source: annex VII of the regulation (EG) no. 1272/2008.