



## H & P Phrases

### Introduction

Since the adoption of the **CLP- or GHS-Regulation** (CLP stands for „classification, labelling and packaging“, and GHS stands for „Globally Harmonised System of Classification and Labelling of Chemicals“) in all countries of the European Union.<sup>20</sup> January 2009, the previously used so called R-Phrases have been replaced by GHS hazard statements (so called H-Phrases), the European hazard statements (EUH-Phrases), as well as the so called S-Phrases by precautionary statements (P-Phrases). H-phrases give hints to special risks which may arise by the handling of hazardous substances or formulations. The letter “H” is the abbreviation for “Hazard statement”. According to the CLP-Regulation, the R-Phrases have to be selected due to the classification of a substance and used for its labelling. Selection of R-Phrases follows the same criteria of the guidelines as for the assignment of hazard pictograms. H-Phrases and the combination of H-Phrases are listed in the CLP-Regulation. The H-Phrases consist of one or several code letters and the related descriptions (e.g., H318: Causes serious eye damage).

The so called P-Phrases give hints to safety informations of a hazardous substance. They should enable the user to avoid risks during the handling of hazardous substances and formulations, and to take measures against the release of these substances, to control the consequences of accidents, and recommend to give first aid. The letter “P” is the abbreviation for “Precautionary statement”. According to the CLP-Regulation, the P-Phrases have to be selected due the classification of a substance and used for its labelling. P-Phrases and the combination of P-Phrases are listed in the CLP-Regulation. Analogous to the H-Phrases, they consist of one or several code letters and the related descriptions (e.g., P261: Avoid breathing dust/fume/gas/mist/vapours/spray.).

While labelling a substance with several H&P Phrases these are connected by „plus“ symbols. Certain H-Phrases are always combined with certain P-Phrases, e.g., H340 with P308 + 313. The H&P Phrases are important parts of an operating instruction and they must be strictly followed.



In practice chemists will often be faced with the problem, that different H&P Phrases are assigned to the same substances depending on their origin (producer). The reason for this is following: The EU assigns obligatory classification and labelling for a series of substances (i.e., H&P Phrases). But for all other substances not listed by the EU, the producer has the obligation to assign the hazard pictograms and H&P Phrases by himself. Classification is done by the EU guidelines on the basis of physical-chemical and toxicological data of the substances. In these cases, there are no standards and each producer classify his product after own test data leading to non-uniform labelling. The data bases for these classifications are usually not available and the classification is, therefore, not comprehensible. It is, therefore, recommended that in case of different labelling of the manufacturers one should follow the most strongest H&P Phrases given.

## H-Phrases – Hints to special risks

### List of H-Phrases

H200	Unstable explosives.
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.



H228	Flammable solid.
H229	Pressurised container: May burst if heated.
H230	May react explosively even in the absence of air.
H231	May react explosively even in the absence of air at elevated pressure and/or temperature.
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 gases.
H270	May cause or intensify fire; oxidiser.
H271	May cause fire or explosion; strong oxidiser.
H272	May intensify fire; oxidiser.
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.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.



H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	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>.
H350i	May cause cancer by inhalation.
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>.
H360F	May damage fertility.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.



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>.
H361f	Suspected of damaging fertility.
H361d	Suspected of damaging the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
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>.
H400	Very toxic 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.
H420	Harms public health and the environment by destroying ozone in the upper atmosphere.



### Combinations of H-Phrases

H300+310	Fatal if swallowed or in contact with skin.
H300+330	Fatal if swallowed or if inhaled.
H310+330	Fatal in contact with skin or if inhaled.
H300+310+330	Fatal if swallowed, in contact with skin or if inhaled.
H301+311	Toxic if swallowed or in contact with skin.
H301+331	Toxic if swallowed or if inhaled.
H311+331	Toxic in contact with skin or if inhaled.
H301+311+331	Toxic if swallowed, in contact with skin or if inhaled.
H302+312	Harmful if swallowed or in contact with skin.
H302+332	Harmful if swallowed or if inhaled.
H312+332	Harmful in contact with skin or if inhaled.
H302+312+332	Harmful if swallowed, in contact with skin or if inhaled.

### EUH-Phrases

EUH001	Explosive when dry.
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.
EUH201	Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.
EUH201A	Warning! Contains lead.
EUH202	Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.
EUH203	Contains chromium (VI). May produce an allergic reaction.
EUH204	Contains isocyanates. May produce an allergic reaction.
EUH205	Contains epoxy constituents. May produce an allergic reaction.
EUH206	Warning! Do not use together with other products. May release dangerous gases (chlorine).
EUH207	Warning! Contains cadmium. Dangerous fumes are formed during use. See information supplied by the manufacturer. Comply with the safety instructions.
EUH208	Contains <name of sensitising substance>. May produce an allergic reaction.
EUH209	Can become highly flammable in use.
EUH209A	Can become flammable in use.
EUH210	Safety data sheet available on request.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

## **P-Phrases: Precautionary statements**

### **List of P-Phrases**

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.



P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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	Do not allow contact with water.
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 valves and fittings free from oil and grease.
P250	Do not subject to grinding/shock/.../friction.
P251	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 [In case of inadequate ventilation] wear respiratory protection.
- P285 In case of inadequate ventilation wear respiratory protection.
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- P301 IF SWALLOWED:
- P302 IF ON SKIN:
- P303 IF ON SKIN (or hair):
- P304 IF INHALED:
- P305 IF IN EYES:
- P306 IF ON CLOTHING:
- P307 IF exposed:
- P308 IF exposed or concerned:
- P309 IF exposed or if you feel unwell:
- P310 Immediately call a POISON CENTER/doctor/...
- P311 Call a POISON CENTER/doctor/...
- P312 Call a POISON CENTER/doctor/.../if you feel unwell.



- P313 Get medical advice/attention.
- P314 Get medical advice/attention if you feel unwell.
- P315 Get immediate medical advice/attention.
- P320 Specific treatment is urgent (see ... on this label).
- P321 Specific treatment (see ... on this label).
- P322 Specific measures (see ... on this label).
- P330 Rinse mouth.
- P331 Do NOT induce vomiting.
- P332 If skin irritation occurs:
- P333 If skin irritation or rash occurs:
- P334 Immerse in cool water/wrap in wet bandages.
- P335 Brush off loose particles from skin.
- P336 Thaw frosted parts with lukewarm water. Do not rub affected area.
- P337 If eye irritation persists:
- P338 Remove contact lenses, if present and easy to do. Continue rinsing.
- P340 Remove person to fresh air and keep comfortable for breathing.
- P341 If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P342 If experiencing respiratory symptoms:
- P350 Gently wash with plenty of soap and water.
- P351 Rinse cautiously with water for several minutes.
- P352 Wash with plenty of water/...
- P353 Rinse skin with water/shower.
- P360 Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
- P361 Take off immediately all contaminated clothing.
- P362 Take off contaminated clothing.



- P363 Wash contaminated clothing before reuse.
- P364 And wash it before reuse.
- P370 In case of fire:
- P371 In case of major fire and large quantities:
- P372 Explosion risk in case of fire.
- P373 DO NOT fight fire when fire reaches explosives.
- P374 Fight fire with normal precautions from a reasonable distance.
- P375 Fight fire remotely due to the risk of explosion.
- P376 Stop leak if safe to do so.
- P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P378 Use ... to extinguish.
- P380 Evacuate area.
- P381 Eliminate all ignition sources if safe to do so.
- P390 Absorb spillage to prevent material damage.
- P391 Collect spillage.
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- P401 Store ...
- P402 Store in a dry place.
- P403 Store in a well-ventilated place.
- P404 Store in a closed container.
- P405 Store locked up.
- P406 Store in corrosive resistant/... container with a resistant inner liner.
- P407 Maintain air gap between stacks/pallets.
- P410 Protect from sunlight.
- P411 Store at temperatures not exceeding ... °C/... °F.
- P412 Do not expose to temperatures exceeding 50 °C/122 °F.



P413	Store bulk masses greater than ... kg/... lbs at temperatures not exceeding ... °C/... °F.
P420	Store away from other materials.
P422	Store contents under ...
P501	Dispose of contents/container to ...
P502	Refer to manufacturer/supplier for information on recovery/recycling.

### Combinations of P-Phrases

P231+232	Handle under inert gas. Protect from moisture.
P235+410	Keep cool. Protect from sunlight.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
P301+330+331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302+334	IF ON SKIN: Immerse in cool water/wrap in wet bandages.
P302+350	IF ON SKIN: Gently wash with plenty of soap and water.
P302+352	IF ON SKIN: Wash with plenty of water/....
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P362+364	Take off contaminated clothing and wash it before reuse.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P304-341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305-351-338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+360	IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.



- P307+311 IF exposed or concerned: Call a POISON CENTER/doctor/....
- P308+313 IF exposed or concerned: Get medical advice/attention.
- P309+310 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P309+311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P332+313 If skin irritation occurs: Get medical advice/attention.
- P333+313 If skin irritation or rash occurs: Get medical advice/attention.
- P335+334 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
- P337+313 If eye irritation persists: Get medical advice/attention.
- P342+311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor/....
- P361+364 Take off immediately all contaminated clothing and wash it before reuse.
- P370+376 In case of fire: Stop leak if safe to do so.
- P370+378 In case of fire: Use ... to extinguish.
- P370+380 In case of fire: Evacuate area.
- P370+380+375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
- P371+380+375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
- P402+404 Store in a dry place. Store in a closed container.
- P403+233 Store in a well-ventilated place. Keep container tightly closed.
- P403+235 Store in a well-ventilated place. Keep cool.
- P410+403 Protect from sunlight. Store in a well-ventilated place.
- P410+412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
- P411+235 Store at temperatures not exceeding ... °C/... °F. Keep cool.