

Sachgebiet Maschinen, Robotik und Fertigungsautomation

# Aspiration hazard caused by metalworking fluid (MWF)? Provisions by the CLP Regulation (GHS)

## Translation of German version

This information is intended as guidance for companies which produce and use metalworking fluid (MWF). It shows the modified classification criteria and labelling resulting from the CLP Regulation (GHS) as well as methods for risk assessment and protective measures.

Hazardous substances may enter the body in very different ways. A particular case exists if a hazardous substance which has been swallowed before gets into the lungs - the „aspiration hazard“.

Swallowing hazardous substances in the factory represents, however, an absolute exception. And, without swallowing, no aspiration can occur, i. e. in the majority of cases, this hazard does not exist.

Only for tasks which involve a relevant risk of swallowing, the aspiration hazard has to be considered in the risk assessment and adequate protective measures have to be implemented. Explicit protective measures when working with metal working fluids are described in clause 6 of DGUV Rule 109-003 (up to now BGR-GUV-R 143) [1].

If the risk assessment shows that there is no relevant probability of swallowing, it can be concluded that no labelling (e.g. on systems) is required.

### 1 Initial situation: aspiration hazard by MWF?

Metalworking fluids can harm people in different ways. Skin diseases come to the fore. Irritations of the respiratory tract occur less frequently and very rare are damages due to swallowing MWF.

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If swallowed hazardous substances cause vomiting and the resulting mixture of gastric juice and hazardous substance (in our case MWF) enters the lungs, it is referred to as aspiration. The same problem may also occur after swallowing hydraulic fluids and HC-containing cleaning agents.

The historical background for labelling is due to the fact that children drank common household „lamp oils“ since they remind them to fruit juices in their appearance and aromatic smell.

There has been a significant number of serious incidents in households, in some cases even fatal – exclusively children have been affected!

Diseases or even cases of death in factories are not known.

The „regulatory“ consequence was an amending directive in 1998 (ATP) of the EC- Substance Directive 67/548/EWG [2] in force at that time.

The following has been agreed:

- Liquid substances and preparations had to be classified which contain aliphatic, alicyclic and aromatic hydrocarbons to  $\geq 10\%$  and which show a kinematic viscosity of  $< 7$  cSt (mm<sup>2</sup>/sec) at 40°C.
- It had to be labelled with **R 65**  
**Harmful –**  
**May cause lung damage if**  
**swallowed.**



It soon became apparent, that the labelling which was initially intended for lamp oils concerned hydrocarbon products to a huge extent; fuel and diesel fuel represent the largest share in trade.

It has to be repeated: the provided labelling almost exclusively concerned a different group of people than that being endangered by lamp oil.

## 2 Classification criteria and labelling according to the CLP Regulation

10 years later, the current CLP Regulation 1272/2008/EC [3] was enacted as implementation of the UN-GHS-Directive. On expiry of all transitional periods by 1 January 2017, it fully substitutes the „old“ Directives – Substance Directive [2] and Dangerous Preparations Directive [4].

The following has been specified:

- Liquid substances and mixtures have to be classified which contain hydrocarbons to  $\geq 10\%$  and which show a kinematic viscosity of  $< 20,5$  cSt (mm<sup>2</sup>/sec) at 40°C.
- It has to be labelled with **H 304: Hazard – May be fatal if swallowed and enters airways**  
(H = Hazard = Gefährdung)



(GHS 08)

At first glance, it seems that only little has changed – the „new hazard pictogram indicates the lungs as affected organ.

But the problem is in the details. The desired improved presentation of the hazard by the pictogram leads to the consequence that „GHS 08“ is also intended to be used for airway-

sensitizing substances, for CMR substances of all categories and for specific hazards to all organs.

Even the linguistic modification from the former definition „may ... cause lung damage“ to the present „may be fatal ...“ represents only a clarification in the subject and no greater hazard. Both cases concern liquids entering the lungs.

Furthermore, the increase of the viscosity limit from 7 to 20,5 cSt at 40°C led to the situation that a lot of substances and products have to be labelled which have been totally free of labelling at the time of the „old“ Directive.

The inhalation of hazardous substances, e.g. of MWF aerosol under usual conditions, can in no case lead to an aspiration hazard.

Although the CLP Regulation is in force since 01 June 2017, these changes can still lead to misinterpretations.

Therefore, purchasers as well as all employees concerned have to be adequately informed and instructed about the modifications in question and their consequences.

## 3 Risk assessment and protective measures

Beyond classification and labelling, the risk assessment has to put particular emphasis on activities.

It has to be determined and assessed specific to the activity whether and in which way an intake into the body takes place.

## 4 „Communication“

The CLP Regulation includes a considerably higher number of products, workplaces and activities in the field of aspiration hazards than before. The fact that products which have not been classified in the past need to be labelled now, requires an explanation for all users.

It may become particularly problematic if products presenting an aspiration hazard and CMR substances are provided with the same hazard pictogram.

It has to be communicated that

- an aspiration hazard is only existent if the symbol „GHS 08“ is used in combination with the H-phrase 304,

- other hazards such as e. g. sensitization of the airways or CMR-effects are marked by the same symbol but by different H-phrases.

A task specific risk assessment is absolutely essential when using products which are labelled accordingly. Most cases will show that products are not swallowed.

For this reason, an aspiration hazard can normally be excluded and a labelling of systems is not required.

The situation may be different in case of a spraying application (spray gun, spray pump) when the large particles of a spray accumulate in the mouth and can be aspirated. It has to be determined by the risk assessment whether and which measures have to be taken in such a case.

## 5 Summary and limits of application

This Information is based on expert knowledge gathered by the expert committee woodworking and metalworking, subcommittee machinery, robotics and automation of DGUV and findings from the accident history in the field of metalworking fluids.

It is particularly intended to provide guidance to those who use metalworking fluids and help them to implement the requirements of the Ordinance on Hazardous Substances.

The provisions according to individual laws and regulations remain unaffected by this DGUV information or the information sheet. The requirements of the legal regulations apply unrestrictedly. In order to get complete information, it is necessary to consult all applicable regulation contents.

The expert committee woodworking and metalworking is composed of representatives of the German Social Accident Insurance Institutions, federal authorities, social partners, manufacturers and users.

This information replaces the expert committee information sheet No. 049 of the same title (issue 07/2010). An updating has become necessary due to editorial amendments.

This information is the English translation of the German issue "FB HM-049" of 05/2018.

Further DGUV information and information sheets of the expert committee woodworking and metalworking (Fachbereich Holz und Metall) are available for download on the internet [5].

As to the aims of the DGUV information, refer to DGUV information FB HM-001 „Aims of the DGUV information published by the expert committee woodworking and metalworking“

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### Bibliography:

- [1] DGUV-Regel 109-003 (up to now: BGR/GUV-R 143) Tätigkeiten mit Kühlschmierstoffen, Issue: May 2009, updated version March 2011, Berufsgenossenschaft Holz und Metall
  - [2] Directive 67/548/EEC („Dangerous Substances Directive“) on the approximation of laws, regulations and administrative provisions for the handling of hazardous substances of 27 June 1967, last amended in May 2009. Repealed with effect on 1 June 2015 by Regulation (EC) No 1272/2008 (CLP).
  - [3] Regulation (EC) No 1272/2008 of the European Parliament and of the Council on the approximation of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
  - [4] Directive 1999/45/EC („Dangerous Preparations Directive“) of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations; last amendment on December 2008. Repealed with effect on 1 June 2015 by Regulation (EC) No 1272/2008 (CLP).
  - [5] Internet: [www.dguv.de/fb-holzundmetall](http://www.dguv.de/fb-holzundmetall) Publikationen oder [www.bghm.de](http://www.bghm.de) Webcode: <626>
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