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Fachbereich Holz und Metall
Berufsgenossenschaft
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Fachbereich
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Aspiration hazard from metalworking fluids Provisions by the CLP Regulation (GHS)

Subcommittee Machinery, Robotics and Automation, Date: 22.09.2026

This “Fachbereich AKTUELL” is intended as guidance for companies which produce and use metalworking fluids (MWF). It outlines the modifications to classification criteria and labelling introduced by the CLP Regulation (GHS „Globally Harmonized System of Classification and Labelling of Chemicals”) as well as methods for conducting a risk assessment and implementing protective measures.

Hazardous substances may enter the body in many ways. A particular case arises if a liquid or solid enters the trachea (windpipe) directly and thus reaches the lungs or has been swallowed and then vomited – known as “aspiration hazard”.

If a relevant aspiration hazard has been determined in the course of activities, it must be considered in the risk assessment, and suitable protective measures must be taken. As a consequence, systems must be labelled accordingly. Specific protective measures for work involving metalworking fluids are described in Section 6 of DGUV Rule 109-003 [1].

Conversely, this means that, following the risk assessment, labelling is not required if there is no significant risk of a liquid or solid being swallowed or entering the respiratory tract directly.

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1 Initial situation: Aspiration hazard due to MWF?

Metalworking fluids can harm people in various ways. Skin diseases come to the fore. Less common are respiratory tract irritations, and in very rare cases, damage may occur as a result of swallowing MWF.

If swallowed hazardous substances cause vomiting and the resulting mixture of gastric juice and hazardous substance (in the present case MWF) or a liquid or solid enters the lungs, this is referred to as aspiration. The same problem may occur after aspiration of hydraulic fluids and hydrocarbon-containing cleaning agents.

The historical background to this labelling lies in the fact that children drank common household ‘lamp oils’ because their appearance and aromatic scent reminded them of fruit juice.

This has led to a significant number of serious incidents in homes, some of which have been fatal − affecting exclusively children.

Incidents of illness or even fatalities caused by aspiration in companies are not known.
The „regulatory“ consequence in 1998 was an amending directive (ATP) of the EC- Substance Directive 67/548/EWG [2] in force at that time.

The following was specified:

- The classification applied to liquid substances and preparations containing aliphatic, alicyclic and aromatic hydrocarbons in a proportion of ≥ 10 % and having a kinematic viscosity of < 7 cSt (mm²/sec) at 40 °C.
- The labelling required was R 65: Harmful − May cause lung damage if swallowed.

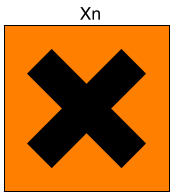


Figure 1 – Harmful

It soon became apparent that this labelling scheme, intended for lamp oils, affected a vast number of hydrocarbon containing products; with heating oil and diesel fuel as the most traded products.

It must be repeated: the implemented labelling almost exclusively concerned a different group of people than that being actually endangered by lamp oil.

2 Classification criteria and labelling according to the CLP Regulation

Ten years later, the CLP Regulation 1272/2008/EC [3], which is currently in force, was adopted as the implementation of the UN GHS Directive. Following the expiry of all transition periods on 1 January 2017, it has fully replaced the ‘old’ Directives – the Substances Directive [2] and the Preparations Directive [4].

The following has been specified:

- The classification applies to liquid substances and mixtures containing hydrocarbons in a proportion of ≥ 10 % and having a kinematic viscosity of < 20.5 cSt (mm²/sec) at 40 °C.
- The labelling required is H 304: Danger – May be fatal if swallowed and enters airways (H = Hazard).



Figure 2 – GHS 08 - Health hazard

At first glance, little seemed to have changed – the ‘new’ hazard pictogram implies that the lungs are the organ affected.

But the problem lies in the details. The intended improved representation of the hazard through the pictogram is ambiguous, as the ‘GHS 08’ is also to be applied to respiratory sensitising substances, carcinogenic, mutagenic and reprotoxic substances (CMR substances) of all categories and specific hazards to all organs.

The change in wording from the previous “may cause lung damage” to the current “may be fatal” merely represents a clarification, but no greater hazard. Both cases involve the ingress of liquids into the lungs.

Furthermore, the increase of the viscosity limit from 7 to 20.5 cSt at 40°C resulted in the need to label a large number of substances and products that were entirely exempt from labelling requirements under the ‘old’ Directives.

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

Although the CLP Regulation has been fully in force since 1 June 2017, these changes could still cause irritation.

Therefore, purchasers and all affected employees must be informed and instructed in an appropriate manner about the changes that have taken place and the resulting consequences.

3 Risk assessment and protective measures

The risk assessment must go beyond classification and labelling, focusing particularly on specific tasks.

For each task, it must be determined and assessed whether and how absorption into the body takes place.

4 Communication

The CLP Regulation covers a significantly higher number of products, workplaces and activities regarding aspiration hazards than before. The fact that products which were not previously classified must now be labelled requires clarification for all users.

A particular problem may arise from the fact that products posing an aspiration hazard and CMR substances are assigned the same hazard pictogram.

It has to be communicated that

- an aspiration hazard is indicated only when the ‘GHS 08’ symbol is used in conjunction with H-statement 304,
- other hazards, such as respiratory sensitisation or CMR effects, are labelled by the same symbol but by different H-statements.

A task-specific risk assessment is absolutely essential when using labelled products. In most cases, it will be found that products will not be swallowed or enter the lower respiratory system directly as a liquid through the oral or nasal cavity.

For this reason, an aspiration hazard can generally be excluded and there is no need to label the systems.

The situation may be different if a spray application (spray gun, spray pump) is used and the large particles in the spray can accumulate in the mouth and be inhaled. In such cases, the risk assessment must determine whether and which measures need to be taken.

5 Summary and limits of application

This “Fachbereich AKTUELL“ 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 intended to support in particular 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 “Fachbereich AKTUELL”. The requirements of the legal provisions apply without restriction.

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, public authorities, social partners, manufacturers and users.

This “Fachbereich AKTUELL” replaces the same titled issue 05/2018. An updating has become necessary due to editorial amendments.

This “Fachbereich AKTUELL” is the English translation of the German issue “FB HM-049” of 09/2026. No liability is accepted for translation errors. In any case, the German original shall prevail.

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

German Bibliography

[1] DGUV Regel 109-003 „Tätigkeiten mit Kühlschmierstoffen“, Stand: April 2026, Berufsgenossenschaft Holz und Metall
[2] Richtlinie 67/548/EWG („Stoff-Richtlinie“) des Rates zur Angleichung der Rechts- und Verwaltungsvorschriften für den Umgang mit gefährlichen Stoffen vom 27. Juni 1967, zuletzt geändert im Mai 2009. Aufgehoben am 1. Juni 2015 durch die EG-Verordnung Nr. 1272/2008 (CLP).
[3] Verordnung (EG) Nr. 1272/2008 des Europäischen Parlaments und des Rates zur Angleichung vom 16. Dezember 2008 über die Einstufung, Kennzeichnung und Verpackung von Stoffen und Gemischen, zur Änderung und Aufhebung der Richtlinien 67/548/EWG und 1999/45/EG und zur Änderung der Verordnung (EG) Nr. 1907/2006. ABl. vom 31.12.2008, Nr. L353/1.
[4] Richtlinie 1999/45/EG („Zubereitungsrichtlinie“) des Europäischen Parlamentes und des Rates vom 31. Mai 1999 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten für die Einstufung, Verpackung und Kennzeichnung gefährlicher Zubereitungen zuletzt geändert im Dezember 2008. Aufgehoben am 1. Juni 2015 durch die EG-Verordnung Nr. 1272/2008 (CLP).
[5] Internet: www.dguv.de/fb-holzundmetall Publikationen oder www.bghm.de Webcode: <626>oder www.bghm.de Webcode: <626>

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The DGUV expert committees are led by the German Social Accident Insurance Institutions for the Public Sector, the industry-related German Social Accident Insurance Institutions and the umbrella organisation DGUV.
The German Social Accident Insurance Institution for the Woodworking and Metalworking Industries (BGHM) is the institution in charge for the expert committee Woodworking and Metalworking and thus the first point of contact at federal level for questions regarding the health and safety at work in this field.