

German TA Luft Classification of Organic Pollutants

Art. 59 IED General requirements:

Application of **CMR** substances/mixtures (H340, H350, H350i, H360D or H360F)?

Use of **Formaldehyde** or formation in process?

Application of **volatile halogenated VOCs** labelled with H341 or H351 (R40 or R68)?

Germany 31. BImSchV:
Application of **VOC classified as No 5.2.5 class I TA Luft 2002?**

- **Substitution** within the shortest possible time (Chapter V, Art. 58)
- Total Emission limit over all CMR of **2 mg/m³** if a mass flow of **10 g/h** is exceeded (Annex VII, Part 4 No 1)
- **Germany 31. BImSchV:** **1 mg/m³** if a mass flow of **2,5 g/h** is exceeded

• **Germany 31. BImSchV:**
Emission limit of **2 mg/m³** if a mass flow of **10 g/h** is exceeded (from: 05.04.2017)

Total Emission limit over all of **20 mg/m³** if a mass flow of **100 g/h** is exceeded (Annex VII, Part 4, No 2)

Application of classification systems

Chapter 6.4 of BREF Large Volume Organic Chemicals

- Potentially a **large number and variety of substances** that can be emitted to air
- **Widely different characteristics** in terms of toxicity etc.
- Characteristics **determine the level and type of BAT**: substances with potential for high environmental harm warrant more onerous prevention and control
- In **assessing the characteristics** of substances a variety of **classification systems** are used in EU Member states (e.g. Germany, Netherlands)

German classification system according to TA Luft 2002: Organic substances

Organic substances class I = more dangerous organic substances e.g.

- Acetaldehyde
- Acrylic acid
- Toluene
- Ethylene
- n-Hexane

carcinogens, e.g.:

In Germany:

Emission limit values for other than VOC installations:

New: Special class:

Formaldehyde:

5 mg/m³ or 12,5 g/h

Additional: different values for certain activities

class I:

-Benzo(a)pyrene

0,15 g/h or
0,05 mg/m³

class II:

- Acryl amide

-Acrylonitrile

-Ethylene oxide

-4-vinyl-1,2-cyclohexene-diepoxy

1,5 g/h or
0,5 mg/m³

class III:

-Benzene

-Trichloroethylene

-Vinyl chloride

-1,2-Dichloroethane

-1,3-Butadiene

-1,2-Propylene oxide

2,5 g/h or
1 mg/m³

Classification of organic substances in No. 5.2.5 class I:

In Germany:

Total emission mass concentration may not exceed 20 mg/m³ if the mass flow exceeds 0,10 kg/h

- There is good cause to believe they are carcinogenic or mutagenic (old: categories K3 or M3, risk phrase R 40; new: Carc or Muta, H341, H351)
- There is good cause to believe they are reproduction toxic (old categories RE3 or RF3, risk phrases R 62 or R 63; new: H361d, H361f or H361fd)
- (**old:** limit value for air at the workplace below 25 mg/m³ applicable); **new:** deleted
- **Old:** they are toxic or very toxic; **new:** acute toxic Acute Tox. 1, 2 or 3 (excepted under „3“ classified only due to „inhalation of vapours“) with H300, H301, H310, H311, H330 or H331
- **Old:** may cause irreversible harm or damage
- **Old:** may cause sensitization when inhaled
- **Old:** they are highly odour-intensive (odour threshold $\leq 0,05$ mg/m³)
- Slowly degradable and accumulative

New planned for current TA Luft revision:

- Harms the organ/organs in case of single or longer/repeated swallow, contact with skin or inhalation or can harm the organ/organs analogous (risk class STOT SE 1, STOT RE 1 with risk statements H370 or H372)
- Can cause allergies, asthma analogous symptoms or difficulties of breathing (risk categories Resp. Sens. 1, 1A or 1B with risk statement H334)

GESTIS-database on hazardous substances

www.dguv.de/ifa/gestis-database

GESTIS is the Information system on hazardous substances
of the German Social Accident Insurance



Toluene



GERMAN WATER HAZARD CLASS

Substance No: 194

WGK 2 - hazard to waters

Classification according to the Administrative Regulation of Substances Hazardous to Water (VwVwS)

TECHNICAL INSTRUCTIONS ON AIR QUALITY CONTROL (TA LUFT)

Chapter 5.2.5 Organic Substances, class I

The following values are in all not allowed to be exceeded in the exhaust gas:

Mass flow: 0,10 kg/hr

or

Mass conc.: 20 mg/m³



What are CMR Substances/Mixtures?

See:

Classification under EU No 1272/2008 **Regulation on classification, labelling and packaging of substances and mixtures – CLP Ordinance**

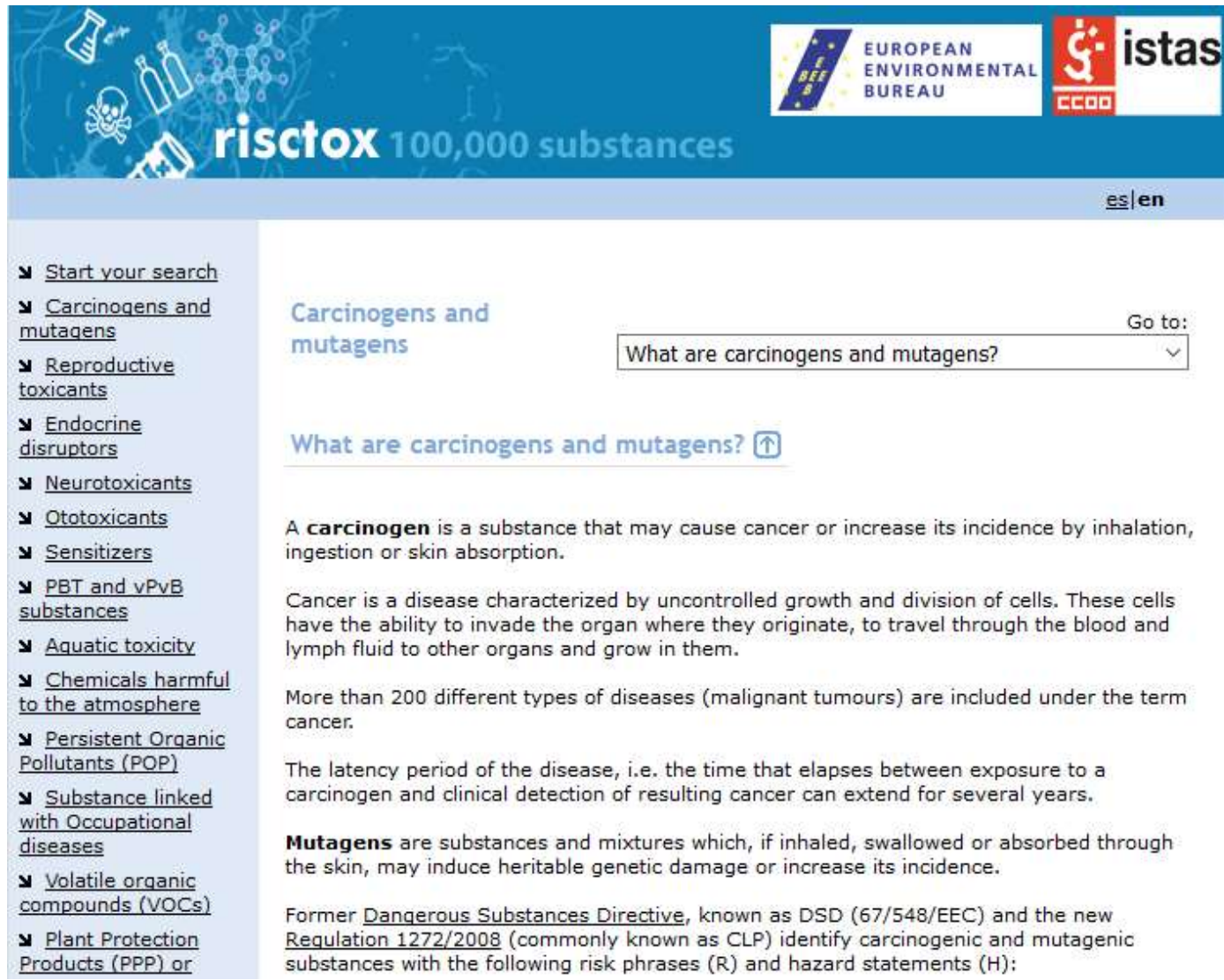
- C = carcinogenic
- M = mutagenic
- R = toxic for reproduction
- Carcinogenicity, hazard categories 1A, 1B
- Germ Cell mutagenicity, hazard categories 1A, 1B
- Reproductive toxicity, hazard categories 1A, 1B

Concerned hazard statements – **Art. 58 IED**

- H340 = May cause genetic defects
- H350 = May cause cancer
- H350i = May cause cancer by inhalation
- H360D = May damage the unborn child
- H360F = May damage fertility



http://risctox.istas.net/en/index.asp?idpagina=607



risctox 100,000 substances

EUROPEAN ENVIRONMENTAL BUREAU

istas

es|en

- Start your search
- Carcinogens and mutagens
- Reproductive toxicants
- Endocrine disruptors
- Neurotoxicants
- Ototoxicants
- Sensitizers
- PBT and vPvB substances
- Aquatic toxicity
- Chemicals harmful to the atmosphere
- Persistent Organic Pollutants (POP)
- Substance linked with Occupational diseases
- Volatile organic compounds (VOCs)
- Plant Protection Products (PPP) or

Carcinogens and mutagens

Go to:

What are carcinogens and mutagens? ↑

A **carcinogen** is a substance that may cause cancer or increase its incidence by inhalation, ingestion or skin absorption.

Cancer is a disease characterized by uncontrolled growth and division of cells. These cells have the ability to invade the organ where they originate, to travel through the blood and lymph fluid to other organs and grow in them.

More than 200 different types of diseases (malignant tumours) are included under the term cancer.

The latency period of the disease, i.e. the time that elapses between exposure to a carcinogen and clinical detection of resulting cancer can extend for several years.

Mutagens are substances and mixtures which, if inhaled, swallowed or absorbed through the skin, may induce heritable genetic damage or increase its incidence.

Former Dangerous Substances Directive, known as DSD (67/548/EEC) and the new Regulation 1272/2008 (commonly known as CLP) identify carcinogenic and mutagenic substances with the following risk phrases (R) and hazard statements (H):

Identification by label

Signal word:

Danger



Examples of VOC CMR substances

Trichloroethylene	Carcinogen
2,4-Dinitrotoluene	Carcinogen
Diisobutyl phthalate (DIBP)	toxic for reproduction
Benzyl butyl phthalate (BBP)	toxic for reproduction
Dibutyl phthalate (DBP)	toxic for reproduction
2-Methoxyethanol (Ethylene glycol monomethyl ether)	toxic for reproduction
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	Toxic for reproduction
1,2-benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	Toxic for reproduction
1-methyl-2-pyrrolidone H360D	Toxic for reproduction
1,2,3-Trichloropropane	Carcinogen Toxic for reproduction
Benzene	Carcinogenic
Formaldehyd	Carcinogenic

Bis (chloromethyl) ether	Carcinogenic
Acrylamide	Carcinogenic
Solvent naphtha (coal), light; Light oil redistillate, low boiling	Carcinogenic
Solvent naphtha (coal), xylene-styrene cut; Light oil redistillate, intermediate boiling	Carcinogenic
Extracts (petroleum), light naphthenic distillate solvent	Carcinogenic
Extracts (petroleum), heavy paraffinic distillate solvent	Carcinogenic
Bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP	Toxic for reproduction
N, N-Dimethylacetamide H360D	Toxic for reproduction
Formamide	Toxic for reproduction
N-Methylacetamide	Toxic for reproduction
N,N-Dimethylformamide; dimethyl formamide	Toxic for reproduction

The screenshot shows the top navigation bar of the ECHA website. On the left is the ECHA logo (European Chemicals Agency). To the right is a search box labeled "Search the ECHA Website" with a magnifying glass icon and a link for "Advanced search". Below the search bar is a horizontal menu with six items: "About Us", "Regulations", "Addressing Chemicals of Concern", "Information on Chemicals" (which is highlighted with a blue underline), "Chemicals in our Life", and "Support". Below the menu is a breadcrumb trail: "ECHA > Information on Chemicals > C&L Inventory". To the right of the breadcrumb trail are social media icons for Facebook, Twitter, Email, RSS, and a plus sign, followed by a notification badge showing the number "46".

C&L Inventory


This database contains classification and labelling information on notified and registered substances received from manufacturers and importers. It also includes the list of harmonised classifications. The database is refreshed regularly with new and updated notifications. However, updated notifications cannot be specifically flagged because the notifications that are classified in the same way are aggregated for display purposes.

Classifications derived from joint submissions to the REACH registration process are flagged accordingly. For more information on these substances, please consult the [Registered substances database](#).

Further information

- [More information about C&L Inventory](#)
- [Understanding the CLP Regulation](#)
- [C&L Platform](#)
- [Q&A on Public C&L Inventory](#)
- [Video tutorial](#)

Search Criteria

Substance Name 

Trichloroethylene

http://gestis-en.itrust.de/nxt/gateway.dll?f=templates\$fn=default.htm\$vid=gestiseng:sdbeng

IFA
Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung

GESTIS Substance Database

SEARCH FORM RESULTS DOCUMENT

Prev Hit Doc Next Hit Doc Prev Hit Match Next Hit Match

IFA **GESTIS Substance database**

Trichloroethylene

Identification | Characterisation | Formula | Toxicology / Ecotoxicology | Physical and chemical properties | Regulations | Links | Literature register

Usage advice
Contents of GESTIS substance database

- IDENTIFICATION
- CHARACTERISATION
- FORMULA
- TOXICOLOGY / ECOTOXICOLOGY
- PHYSICAL AND CHEMICAL PROPERTIES
- OCCUPATIONAL HEALTH AND FIRST AID
- SAFE HANDLING
- REGULATIONS
- LINKS
- REFERENCES

Substitution of CMR

- **No transition time period!**
- Operator must check all possibilities
- Assessment of the operator for substitution should be comprehensible and follow a systematic approach. A report about the assessment and taken efforts should be submitted to authority as a proof
- In case a substitution is not possible: regularly documented checks are required that should be reported to the authority

Substitution of CMR

<http://echa.europa.eu/regulations/substituting-hazardous-chemicals>

The screenshot shows the ECHA website interface. At the top, there is a search bar with the text 'Suchen' and a search icon. Below the search bar is the ECHA logo (European Chemicals Agency) and a navigation menu with the following items: 'About Us', 'Regulations' (highlighted), 'Addressing Chemicals of Concern', 'Information on Chemicals', 'Chemicals in our Life', and 'Support'. Below the navigation menu, the breadcrumb trail reads 'ECHA > Regulations > Substituting hazardous chemicals'. To the right of the breadcrumb trail are social media icons for Facebook, Twitter, Email, RSS, and a plus sign, followed by a '2' icon. The main heading is 'Substituting hazardous chemicals'. Below the heading is a paragraph: 'Companies are replacing hazardous chemicals with safer chemicals or techniques. This kind of substitution can bring substantial benefits for the company itself, the environment and the health of workers and consumers.' To the right of this paragraph are three icons: a film strip, a laptop, and a document. Below these icons are three links: 'Video: "Painting a safer Europe"', 'Webinar: Why opt for substitution?', and 'ECHA newsletter on substitution'. Below the main heading are two columns of content. The left column is titled 'Why should I substitute?' and features an image of a hand pouring liquid into several beakers. The right column is titled 'Do I have to substitute?' and features an image of a person's feet walking on a large white arrow pointing forward.

Art. 59 (5) IED: Halogenated VOC H341 or H351 - examples

✓ Harmonised classification - Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation)

General Information


Dichloromethane

Index Number	EC Number	CAS Number	International Chemical Identification
602-004-00-3	200-838-9	75-09-2	dichloromethane methylene chloride

ATP Inserted / Updated: CLP00 ⓘ

CLP Classification (Table 3.1)

Classification		Labelling		
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)
Carc. 2	H351	H351 H351		GHS08 Wng

Signal Words	Pictograms
Warning	 <p>Health hazard</p>

Article 59 (5): CMR

- The emissions of **CMR or halogenated volatile organic compounds H341 or H351** shall be **controlled under contained conditions**
- as far as technically and economically feasible to safeguard public health and the environment and
- shall **not exceed the relevant emission limit values** set out in Part 4 of Annex VII.

Note: Article 57 (12) IED: Contained Conditions



‘contained conditions’ means conditions under which an installation is operated so that the **VOC released** from the activity are **collected and discharged in a controlled way either via a stack or abatement equipment** and are, therefore, not entirely fugitive;

Disclaimer

This presentation is a non-commercial product. No use of this publication may be made for resale or any other commercial purpose.

However, the presentation itself is not an official EU or document of German authorities and does not represent EU or policy of others. The views expressed above are those of the authors. This document is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this document or any part thereof, is made known. Any such party relies on the document at their own risk.

This presentation may not be published in any medium like Internet. All rights remain to the authors.