

Ethylenediaminetetraacetic acid



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IDENTIFICATION

Ethylenediaminetetraacetic acid

EDTA acid

Ethylenedinitrilotetraacetic acid

Edetic acid

ZVG No: 34820
CAS No: 60-00-4
EC No: 200-449-4
INDEX No: 607-429-00-8

CHARACTERISATION

SUBSTANCE GROUP CODE

143001 Carboxylic acids, substituted
144200 Amino compounds

STATE OF AGGREGATION

The substance is solid.

PROPERTIES

whitish
odourless

CHEMICAL CHARACTERISATION

Combustible substance, poorly flammable.
Very slightly soluble in water.
Aqueous solution reacts acidic.
Acute or chronic health hazards result from the substance.

The substance is hazardous to the aquatic environment.
(see: chapter REGULATIONS).

[Substance information in Wikipedia](#)

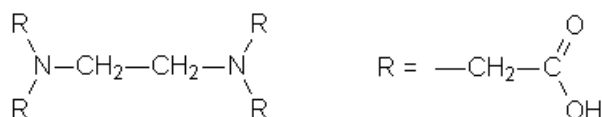
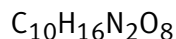
DUST EXPLOSIVENESS

There is a risk of a dust explosion if the following conditions are met:

- The substance is given in very finely distributed form (powder, dust).
- The substance is whirled up in sufficient quantity in the air.
- An ignition source is present (flame, spark, electrostatic discharge, etc.)

Quelle: [00305](#)

FORMULA



Molar mass: 292,25 g/mol

PHYSICAL AND CHEMICAL PROPERTIES

[Melting point](#) | [Density](#) | [Ignition temperature](#) | [Solubility](#) | [pH-value](#) | [Hazardous reactions](#)

MELTING POINT

The substance decomposes when heated (see decomposition temperature).

Reference: [01271 99999](#)

DENSITY

DENSITY

Value: 1,46 g/cm³

Temperature: 20 °C

Reference: [01221 01271 07520](#)

IGNITION TEMPERATURE

Ignition temperature: > 200 °C

Reference: [01211](#)

SOLUBILITY IN WATER

Concentration: 0,5 g/l

Temperature: 20 °C

Reference: [01211 01231 01321](#)

pH-VALUE

pH-value: ca. 2,5

Temperature: 23 °C

Concentration: 10 g/l

slurry

Reference: [01211](#)

HAZARDOUS REACTIONS

Decomposition temperature: > 220 °C

TOXICOLOGY / ECOTOXICOLOGY**ECOTOXICOLOGICAL DATA****LC50 Fish (96 hours)**

Minimum: 41 mg/l
Maximum: 532 mg/l
Median: 109 mg/l
Study number: 4

Reference for median:

Curtis, M.W., and C.H. Ward 1981. Aquatic Toxicity of Forty Industrial Chemicals: Testing in Support of Hazardous Substance Spill Prevention Regulation. J.Hydrol. 51:359-367 (Author Communication Used); Batchelder, T.L., H.C. Alexander, and W.M. McCarty

EC50 Crustaceans (48 hours)

Minimum: 113 mg/l
Maximum: 113 mg/l
Median: 113 mg/l
Study number: 1

Reference for median:

"Janssen, C.R., E.Q. Espiritu, and G. Persoone 1993. Evaluation of the new "Enzymatic Inhibition" Criterion for Rapid Toxicity Testing with Daphnia magna. In: A. Soares and P. Calow (Eds.), Progress in Standardization of Aquatic Toxicity Tests, Lewis Publ. :71-81"

Reference: 02072

OCCUPATIONAL HEALTH AND FIRST AID

[Routes of exposure](#) | [Toxic effects](#) |
[First Aid](#)

ROUTES OF EXPOSURE**Main routes of exposure**

The main intake pathway for ethylenediaminetetraacetic acid (EDTA) in the workplace is expected to be via inhalation, mainly as an aerosol. [7922, 2050]

Respiratory tract

EDTA dust can be inhaled during its manufacture and processing. The proportion which can be inhaled seems to be small (according to statements made by a manufacturer only 15% of dust particles have a diameter of less than 63 µm).

The substance is frequently handled in form of aqueous preparations, during which time the release of vapors containing EDTA is considered to be negligible but droplets of aerosols from these solutions could be inhaled during spraying. [2050]

No information is available on the kinetics of uptake in the respiratory tract. [99983]

Dust is hardly expected to reach the deeper bronchial areas because of the particle size. [7619] The main part is expected to be carried over from the respiratory tract into the gastrointestinal tract by the mucociliary clearance mechanism. [99999]

Aerosols from solutions are expected to contain a proportion of respirable droplets. [7619]

Skin

Uptake via contact with the skin could be relevant from an occupational health standpoint. [7922]
Nevertheless, only tiny amounts of the EDTA calcium disodium salt or an EDTA sodium salt were absorbed through the skin of test persons following application over a large area (maximum of 0.001%).

The relationships are expected to be similar for free EDTA. [2050]

Gastrointestinal tract

24 hours following oral application of the EDTA calcium disodium salt to volunteers only about 5% of the dose was absorbed. The absorption in animal experiments was also around this value. [2050, 7619]

The dissociation and degree of the formation of EDTA complexes in the gastrointestinal tract is dependent on the pH but not dependent on whether it is the salt or the free acid which is swallowed. For this reason, these results can be applied to the free acid. [2050]

TOXIC EFFECTS

Main toxic effects

Acute:

Irritation to the eyes; respiratory reactions for persons with disposition; [2050]

at high levels of bioavailability: disturbance to general well being, effects resulting from calcium depletion [7714, 8088]

Chronic:

Interference with the metal metabolism;

kidney damage at very high levels of bioavailability [7922, 99996]

Acute toxicity

The generally very weak toxic potential of EDTA has been demonstrated by numerous clinical studies oriented in particular at its medicinal application (chelation therapy for the purpose to remove heavy metals from the body). [99996] Little data is available on the acute effects caused by free EDTA via exposure routes which are relevant in the workplace. The data available are mainly from animal experiments. [99983]

Strong irritation, edema and strong opacity of the cornea were seen after the application of solid EDTA (50 mg) to rabbits' eyes for 24 hours but all findings were reversible after 8 days. EDTA was classified as irritating to the eyes.

No significant irritation to the skin could be found in a test on rabbits (application of a 50% aqueous solution of EDTA for up to 20 hours). [2050]

Isolated cases of allergic skin reactions have been described for humans (see "Chronic toxicity"). [7619, 99996] Tests on the potential to sensitize were carried out on guinea pigs with the EDTA disodium salt and the EDTA trisodium salt (Maximization Test according to OECD Guideline 406 or Repeated Insult Patch Test). They indicate that there either is no or only a weak potential to sensitize. [7619]

Acute toxic effects following skin contact are not expected. [2050]

A screening test is available on the inhalative toxicity. Rats exposed for 8 hours to an atmosphere which had been enriched with EDTA dust at 80 degrees C showed no symptoms apart from mild irritation to mucous membranes. There were no deaths and the autopsy did not reveal any findings. [220, 2050]

For humans there are indications that there could be respiratory reactions for predisposed persons. 6 of 22 asthmatics who inhaled a mist from an EDTA solution (0.25 - 10 g/l) suffered a bronchoconstriction (for > 1 h). The investigators suspected that the reaction was caused by chelate formation of EDTA with calcium ions in the respiratory tract. In a later, analogous study, no such effects were registered. However, respiratory reactions following previous, repeated exposure to EDTA have not been investigated.

The danger of poisoning following swallowing is low. 2000 mg/kg bw did not cause any symptoms or deaths in a valid test on rats. The LD50 was stated to be 4500 mg/kg bw (symptoms: dyspnea, diarrhea, spasms; autopsy findings: general hyperemia, heart dilation, stomach ulcers and liquid in the intestine). [2050]

Systemic toxic effects to humans has only been described in connection with the intravenous application of the EDTA calcium disodium salt as a chelating agent for therapeutical purposes, mainly to remove heavy metals (usual dose initially 15 - 20 mg/kg bw as a solution during 2 hours). Occasionally flu-like complaints appeared during such (probably massive) infusions. The symptoms were muscle and head pain, nausea, chills, fever, disorders of micturition. Too rapid administration can lead to serious neuromuscular disturbances (hypocalcemic tetany) as a result of the drop in the serum level of ionized calcium. An overdose can lead to kidney damage (see "Chronic toxicity"). [7922, 7906]

In isolated cases cardiac effects were registered (repolarization disturbances or ventricular fibrillation during the injection of a contrast medium containing EDTA). [7922]

Although the effects caused by free EDTA are assumed to be stronger than those caused by its calcium disodium salt, [7922] these effects are not considered to be relevant in the context of the very limited possibilities of intake in the workplace. [7619]

Chronic toxicity

No adverse respiratory reactions or other complaints have been reported following exposure to EDTA or to its tetrasodium salt in four factories producing or processing EDTA. Information on the magnitude of the exposure and the clinical results are not available, so general conclusions cannot be drawn. [7619]

No further workplace studies are available. [99983]

There have been isolated cases of persons who showed allergic skin reactions following external application of medical or cosmetic preparations containing EDTA (eczema, dermatitis, periorbital edema, also conjunctivitis) and who showed positive reactions to EDTA or EDTA sodium salts in patch tests. In one case, a strong positive reaction to EDTA was found following contact with a fertilizer which contained an EDTA iron sodium complex as the active ingredient (Sequestrene 138Fe). [7619, 2050, 7714, 99996]

In studies on large groups of unselected skin patients, very few of those tested reacted positively to EDTA (0.4% - 2.8%). In some cases there were simultaneous positive reactions to ethylene diamine (which has been proven to have a sensitizing effect). A cross reactivity between the two substances is possible but has not definitely been demonstrated. [2050, 7619]

Very low systemic toxicity of EDTA has been proven in animal studies carried out with the sodium salts.

Based on 2-year studies in which the EDTA trisodium salt was administered orally, the NOAEL based on the EDTA content was approx. 400 mg/kg bw x d for rats and approx. 760 mg/kg bw x d for mice. Higher doses (for rats from approx. 1000 mg Na₂EDTA/kg bw x d) caused diarrhea, loss of weight and influenced hematological and clinical-chemical parameters in subchronic studies. [7619]

EDTA is taken in outside the workplace via drinking water and food. The depletion of essential metals in the organism, in particular zinc, is considered to be the critical effect of extensive intake. This effect can be caused by bioavailable EDTA but also by the direct formation of EDTA complexes with metals contained in food. [99996, 7922]

For the application of the EDTA calcium disodium salt as food additive, daily doses of 2.5 mg/kg bw (corresponding to 1.9 mg/kg bw based on free EDTA) are considered as tolerable lifelong. [99996]

The only indications of a damaging effect to the kidneys are from the use of the EDTA calcium disodium salt in chelation therapy. In some cases kidney function disturbances through to serious, sometimes fatal kidney damage (tubular necrosis) developed following repeated intravenous administration (mostly overdose). [7922]

It is not possible for such high doses to become bioavailable in the workplace under the usual conditions encountered during handling. [2050, 7619]

Reproductive toxicity, mutagenicity, carcinogenicity

Reproductive toxicity:

Orally administered EDTA (and its alkali salts) in doses up to 1000 mg/kg bw x d (based on EDTA) did not cause any effects in tests on the developmental toxicity. At 1250 mg/kg bw x d there were embryotoxic and also teratogenic effects which were attributed to a depletion of zinc levels in fetes. No influence on fertility could be found in a multi-generation study with doses up to 250 mg CaNa₂EDTA /kg bw x d. Indications of a reduction in fertility were seen at very high doses (3000 mg Na₂EDTA /kg bw x d). [2050, 7619]

Mutagenicity:

Numerous tests carried out with EDTA and its alkali salts provided no valid indication of any genotoxic effect. Damage to chromosomes (aneugenic effect) was found in isolated tests at very high doses and was attributed to a chelating effect. [7619]

Carcinogenicity:

Oral carcinogenicity studies carried out with the EDTA trisodium salt on rats and mice provided negative results (doses corresponded to 400 or 760 mg EDTA/kg bw x d). There is no suspicion that EDTA or its alkali salts cause any carcinogenic effects during occupational exposure. [7619]

Biotransformation and excretion

Kinetic studies carried out with ¹⁴C labeled EDTA on volunteers using different intake pathways (i.v., i.m., s.c., oral) showed that the substance is distributed almost completely within the bodily fluids. [7714] Investigations of the spinal liquids showed that very little passes the blood-liquor barrier. [7922]

Metabolic transformation does not take place. Elimination is almost entirely with the urine as calcium chelate and a large part is excreted within the first hours. [7714] The elimination is effectively completed within 24 hours and only small amounts remain in the kidney tissue (as zinc chelate). [7922]

The most important interaction of EDTA with biological systems is its capability to form stable metal chelates. The active part which forms complexes is the fully dissociated EDTA anion for which the concentration increases with increasing pH in aqueous solutions.

The formation of complexes is used in chelation therapy to bind heavy metals and remove them from the body. The main acute side effects are attributed to the blocking of calcium in the serum [7714] and effects following long-term application can be caused by the depletion of essential metals (particularly zinc). [7922] The damage to the tubules in the kidneys is attributed to the breakdown of collages in this area. [7714]

Annotation

This occupational health information was compiled on 13.11.2012.

It will be updated if necessary

FIRST AID

Eyes

Rinse the affected eye with widely spread lids for 10 minutes under running water whilst protecting the unimpaired eye.

Arrange medical treatment.

[2001]

Skin

Remove contaminated clothing while protecting yourself.

Cleanse the affected skin areas thoroughly with soap under running water.

For irritation:

Arrange for medical treatment.

[454]

Respiratory tract

Whilst protecting yourself remove the casualty from the hazardous area and take him to the fresh air. Lay the casualty down in a quiet place and protect him against hypothermia.

[2001]

Following massive inhalation/if there are respiratory complaints:

In the case of breathing difficulties have the casualty inhale oxygen.

Arrange medical treatment.

[454]

Swallowing

Rinse the mouth and spit the fluids out.

If the casualty is conscious have him drink 1 glass of water (ca 200 ml).

Arrange medical treatment.

During spontaneous vomiting hold the head of the casualty low with the body in a prone position in order to avoid aspiration. [2001, 22]

Information for physicians

Ethylenediaminetetraacetic acid (EDTA) is considered to be virtually non-toxic. Systemic effects have been (seldom) seen when the EDTA calcium disodium salt was administered intravenously as a chelation therapy to remove heavy metals from the body. [7922] If accidents occur in the workplace, only weak to moderate local irritation would be expected. [419]

- Symptoms of acute poisoning:

Eyes: reddening/swelling of the conjunctiva, corneal opacity, effects initially become more intense but later mostly subsided [7922]

Skin: no/minor primary irritation, allergic reactions in isolated cases possible; absorptive effects not expected

Inhalation: following massive inhalation non-specific irritation of the upper airways (coughing) possible, [2001] for persons predisposed (asthmatics), obstructions of the airways (caused by fine aerosols, possibly already at low concentrations) [7619]

Ingestion: gastrointestinal disturbances, at very high doses possibly irritation/damage to the mucous membranes in the stomach and intestine, absorptive effects only at extremely high doses. [2050, 8088]

Absorption: If a high amount of EDTA becomes bioavailable there could be symptoms such as nausea, dizziness, myalgia, headache, fever, disorders of micturition, possibly cardiovascular response, in extreme cases strong neuromuscular disturbances resulting from a rapid drop in the serum calcium level (hypocalcemic tetany) or -after a latency period- kidney damage (proximal tubules with early symptoms of alpha-aminoaciduria, pathological bladder sediment, albuminuria), more likely to occur for persons who had already suffered kidney diseases. [7922, 8088]

- Medical advice:

Following contact with the eyes, rinse generously with water/ physiological saline solution. An ophthalmologist should then be consulted. [454]

Clean affected skin areas thoroughly. Any irritated areas can be treated with a dermatocorticoid foam spray and further treatment should not be necessary. [99999]

Following inhalation of dusts/aerosols from solutions apply fresh air generously. If there are respiratory disturbances have the casualty inhale oxygen. For airway obstruction apply bronchodilators. In extreme cases, application of glucocorticoids and further measures for pulmonary edema as also prophylaxis for pneumonia could become necessary.

If EDTA has unintentionally been swallowed, having the casualty drink water to dilute the EDTA should normally be sufficient, even if large doses have been swallowed. [454]

To promote excretion via the kidneys, a controlled supply of liquids or forced diuresis are recommended.

Do not carry out excessive treatment because complaints are generally expected to subside of their own accord. [8088]

If there is hemorrhagic diathesis or if tetanus-like cramps appear in extreme cases, the administration of calcium gluconate could become necessary. [454, 8088] Take particular care if cortisone or pharmaceuticals with a nephrotoxic effect are being used.

Even if there are no complaints, the casualty should be hospitalized at least for a short period to enable the kidney and heart-circulatory function, the water and electrolyte balance and the hemogram to be checked. If necessary, carry out careful substitution of biometals which have been removed from the body. Possibly endoscopic inspection of the mucous membranes. [8088]

Recommendations

Provide the physician information about the substance/product and treatment already administered. [99999]

Annotation

This first aid information was compiled on 13.11.2012.
It will be updated if necessary.

SAFE HANDLING

[Handling](#) | [Storage](#) | [Fire and explosion protection](#) | [Organisational measures](#) | [Personal protection](#) | [Disposal considerations](#) | [Accidental release measures](#) | [Fire fighting measures](#)

TECHNICAL MEASURES - HANDLING

Workplace

Provision of good ventilation in the working area.
The floor should not have a floor drain.
Washing facility at the workplace required.
Eye bath required. These locations must be signposted clearly.

Equipment

Use closed apparatus if possible.
If release of the substance cannot be prevented, then it should be suctioned off at the point of exit.
Consider emission limit values, a purification of waste gases if necessary.
Label containers and pipelines clearly.

Unsuitable materials:

Copper
Copper alloys
Nickel

Advice on safer handling

Take care to maintain clean working place.
Do not leave container open.
Sufficient ventilation must be guaranteed for refilling, transfer, or open use.
Fill only into labelled container.
Avoid rising dust.

Cleaning and maintenance

Use protective equipment while cleaning if necessary.
Avoid dust formation. Dust formation that cannot be avoided must be collected regularly.
Use tested industrial vacuum cleaners or suction systems for areas with a high risk of explosion.
Do not raise dust while cleaning.
Use of a blower for cleaning is not permitted.

TECHNICAL MEASURES - STORAGE**Storage**

Do not use any food containers - risk of mistake.
Containers have to be labelled clearly and permanently.
Store in the original container as much as possible.
Keep container tightly closed in a cool, dry and well-ventilated place.

Conditions of collocated storage

Storage class 10 - 13 (Other liquids and solids)
Only substances of the same storage class should be stored together.
Collocated storage with the following substances is prohibited:
- Pharmaceuticals, foods, and animal feeds including additives.

- Infectious, radioactive und explosive substances.
- Strongly oxidizing substances of storage class 5.1A.

Under certain conditions the collocated storage with the following sub-stances is permitted (For more details see [TRGS 510](#)):

- Gases.
- Flammable liquids of storage class 3.
- Other explosive substances of storage class 4.1A.
- Pyrophoric substances.
- Substances liberating flammable gases in contact with water.
- Oxidizing substances of storage class 5.1B.

- Ammonium nitrate and preparations containing ammonium nitrate.
 - Organic peroxides and self reactive substances.
 - Combustible and non combustible acutely toxic substances of storage classes 6.1A and 6.1B.
- The substance should not be stored with substances with which hazardous chemical reactions are possible.

TECHNICAL MEASURES - FIRE AND EXPLOSION PROTECTION

Technical, constructive measures

Substance is combustible.

Fire fighting equipment must be available.

If there is a risk of a dust explosion due to the dust-like distribution and the quantities used, measures according to [TRGS 722](#) (prevention of formation), 723 (prevention of ignition) and [TRGS 724](#) (constructive explosion protection) may become necessary.

Precaution on handling

Areas in which the substance can arise as a dust in such quantities that a dust explosion could occur are to be considered as at a risk of explosion.

Keep away from sources of ignition (e.g. open flames, heat sources and sparks).

ORGANISATIONAL MEASURES

Instruction on the hazards and the protective measures using instruction manual ([TRGS 555](#)) are required with signature if just more than one minor hazard was detected.

Instruction must be provided before employment and then at a minimum of once per annum thereafter.

Observe the restrictions on juvenile employment as defined in the "Jugendarbeitsschutzgesetz".

PERSONAL PROTECTION

Body protection

Depending on the risk, wear a suitable protective clothing or a suitable chemical protection suit.

Respiratory protection

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.

Respiratory protection: Particle filter P2, colour code white.

Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

Eye protection

Sufficient eye protection must be worn.

Wear glasses with side protection.

Hand protection

The use of resistant protective gloves is recommended.

Skin protection cremes do not protect as effectively against the substance as protective gloves. Therefore suitable protective gloves should be preferred as far as possible.

Currently there is no information available regarding suitable glove materials.

Experience says that polychloroprene, nitrile rubber, butyl rubber, fluoro-caoutchouc, and polyvinyl chloride are suitable as glove materials for protection against un-dissolved solids.

Occupational hygiene

Foods, beverages and other articles of consumption must not be consumed at the work areas.

Suitable areas are to be designated for these purposes.

Avoid contact with eyes. In case of contact rinse the affected eye(s).

Avoid inhalation of dust.

Avoid contact with clothing. Contaminated clothes must be exchanged and cleaned carefully.

Provide washrooms with showers and if possible rooms with separate storage for street clothing and work clothing.

The skin must be washed with soap and water before breaks and at the end of work. Apply fatty skin-care products after washing.

DISPOSAL CONSIDERATIONS

Hazardous waste according to Waste Catalogue Ordinance (AVV).

If there is no way of recycling it must be disposed of in compliance with the respective national and local regulations.

Collection of small amounts of substance:

Do not put/place waste into sink or dust bin.

Collect in container for solid organic residues.

Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

ACCIDENTAL RELEASE MEASURES

Wear personal protective equipment (see chapter Personal Protection).

Pick up without creating dust.

Afterwards ventilate area and wash spill site.

Endangerment of watert:

Distinct hazard to waters. Prevent penetration into water, drainage, sewer, or the ground. Inform the responsible authorities about penetration of larger quantities.

FIRE FIGHTING MEASURES

Suitable extinguishing media

Water (spray - not splash)

Dry extinguishing powder

Foam

Carbon dioxide

Instructions

Seek immediate cover in case of sudden release and raising of large quantities of dust.

Cool surrounding containers with water spray.

If possible, take container out of dangerous zone.

Shut off sources of ignition.

Do not allow runoff to get into the sewage system.

Special protective equipment

In the case of a fire hazardous substances can be released.

Nitrous gases (nitric oxides)

Carbon monoxide and carbon dioxide

Wear self-contained breathing apparatus and special tightly sealed suit.

REGULATIONS

GHS Classification/ Labelling | Workplace labelling | Water hazard class | Air quality control |
Transport Regulations | MAK recommendations | Restriction of use | Technical rules |
Regulations of accident insurers

EUROPEAN GHS CLASSIFICATION AND LABELLING

Classification

Eye irritation, Category 2; H319

Acute toxicity, Category 4, inhalation; H332

Specific Target Organ Toxicity (repeated exposure), Category 2; H373



Signal Word "Warning"

Hazard Statement - H-phrases

H319: Causes serious eye irritation.

H332: Harmful if inhaled.

H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement - P-phrases

P280: Wear eye protection/face protection.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTER or doctor if you feel unwell.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Manufacturer's specification by Thermo Fisher Scientific

Reference: [01231](#)

State: 2021

Checked: 2021

The substance is listed in appendix VI, table 3 of CLP regulation.

The given classification can deviate from the listed classification, since this classification is to be complemented concerning missing or divergent danger classes and categories for the respective substance.

Reference: [99999](#)

GHS-CLASSIFICATION OF MIXTURES

The classification of mixtures containing this substance results from Annex 1 of Regulation (EC) 1272/2008.

Reference: [07501](#)

WORKPLACE LABELLING ACCORDING TO GERMAN [ASR A1.3](#)

Precept label



Use safety goggles

GERMAN WATER HAZARD CLASS

Substance No: 104

WGK 2 - distinct hazard to waters

Classification according to the announcement of the list of substances hazardous to water in the Federal Register of 10.08.2017, last update 24.11.2023

TECHNICAL INSTRUCTIONS ON AIR QUALITY CONTROL (TA LUFT)

Chapter 5.2.1 Overall Dust, including fine dust

The emissions of dust in the exhaust gas are not allowed to exceed the following values:

Mass flow: 0,20 kg/hr

or

Mass conc.: 20 mg/m³

The mass per unit volume of 0,15 g/m³ in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h.

TRANSPORT REGULATIONS

Not subject to transport regulations.

Reference: 01231

RECOMMENDATIONS OF MAK-COMMISSION

This data is recommended by scientific experience and is not established law.

II b) substances, for which (still) no MAK-values can be established

Avoid mixed exposure with iron (formation of EDTA iron salt)

RESTRICTIONS OF USE / BANS OF USE

REACH Regulation (EC) No 1907/2006 Annex XVII

Annex XVII, Point 75

Mixtures containing certain hazardous substances shall no longer be placed on the market for tattooing purposes. Mixtures containing such substances in specified concentrations shall no longer be used for tattooing purposes after 04.01.2022. Substances falling within one or more of the following points:

- carcinogenic or reproductive toxic substances according to Part 3 of Annex VI to CLP Regulation (excluding the classification due to effects only following exposure by inhalation),
- skin-sensitising, skin-corrosive, skin-irritant, serious eye-damaging or eye-irritant substances according to Annex VI Part 3 of the CLP Regulation,
- substances listed with specified conditions in Annex II or IV to Regulation (EC) No 1223/2009 [Cosmetics Regulation], and
- substances listed in Appendix 13 to Annex XVII (point 75) of the REACH Regulation.

In general, mixtures placed on the market for use for tattooing purposes must be labelled "Mixture for use in tattoos or permanent make-up." from 04.01.2022 on and may not be used for tattooing purposes without this labelling. Further safety information shall be provided on the packaging or in the instructions for use. Before using a mixture for tattooing purposes, the person using the mixture shall provide this information to the person undergoing the procedure.

Further information on the restrictions, concentration limits and exemptions can be taken from the Regulation.

Annex XVII to Regulation (EC) No 1907/2006, [consolidated version](#) (BAUA) (only in German)

TECHNICAL RULES FOR HAZARDOUS SUBSTANCES

[TRGS 201](#)

Einstufung und Kennzeichnung bei Tätigkeiten mit Gefahrstoffen; Ausgabe Februar 2017, zuletzt geändert und ergänzt April 2018

[TRGS 400](#)

Gefährdungsbeurteilung für Tätigkeiten mit Gefahrstoffen; Ausgabe Juli 2017

[TRGS 555](#)

Betriebsanweisung und Information der Beschäftigten; Ausgabe Februar 2017

[TRGS 600](#)

Substitution; Ausgabe Juli 2020

[TRGS 500](#)

Schutzmaßnahmen; Ausgabe September 2019

[TRGS 509](#)

Lagern von flüssigen und festen Gefahrstoffen in ortsfesten Behältern sowie Füll- und Entleerstellen für ortsbewegliche Behälter; Ausgabe Juni 2022

[TRGS 510](#)

Lagerung von Gefahrstoffen in ortsbeweglichen Behältern; Ausgabe Januar Dezember 2020

[TRGS 800](#)

Brandschutzmaßnahmen; Ausgabe Dezember 2010

REGULATIONS OF GERMAN ACCIDENT INSURERS

[DGUV Regel 112-190](#)

Benutzung von Atemschutzgeräten, Ausgabe November 2021
(in German only)

LINKS

[OECD Screening Information DataSet \(SIDS\)](#)

[Risk Assessment Report](#)

[The MAK Collection for Occupational Health and Safety](#)

REFERENCES

Quelle: 00001

IFA: Erfassungs- und Pflegehandbuch der GESTIS-Stoffdatenbank (nicht öffentlich)
Data acquisition and maintenance manual of the GESTIS substance database (non-public)

Quelle: 00022

G. Hommel

"Handbuch der gefährlichen Güter" Loseblattsammlung mit Ergänzungslieferungen

"Handbook of dangerous goods " loose-leaf collection with supplement deliveries

Springer-Verlag, Heidelberg

Quelle: 00220

IUCLID-CD-ROM, Year 2000 edition; European Commission, Joint Research Centre, Institute for Health and Consumer Protection, European Chemicals Bureau; Ispra, Italy

Quelle: 00305

G. Hommel "Handbuch der gefährlichen Güter" ("Handbook of Dangerous Goods"), CD-ROM

"Hommel interaktiv" ab Version 15.0 Springer-Verlag, Berlin Heidelberg

Quelle: 00419

CHEMINFO - Chemical Profiles Created by CCOHS

Quelle: 00454

Hazardous Substances Data Bank (HSDB)

Quelle: 01211

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Quelle: 07619

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Quelle: 99983

Liste arbeitsmedizinisch-toxikologischer Standardwerke (2)

List of standard references regarding occupational health and toxicology (2)

Quelle: 99996

Projektgebundene arbeitsmedizinisch-toxikologische Literatur (2)

Project related bibliographical references regarding occupational health and toxicology (2)

Quelle: 99999

Angabe des Bearbeiters

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