

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 14.11.2023

Version number 27 (replaces version 26)

Revision: 14.11.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Product name:** DEHA Indicator Solution

· **Catalog number:** 424404, 461190, 4461190, 4461195, 424404-0, 424404-100

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**

· **Application of the substance / the preparation:** Reagent for water analysis

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**

Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com

phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom

phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**

e-mail: sds@lovibond.com
Product Safety Department

· **1.4 Emergency telephone number:**

+44 1235 239670
Languages: English

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS08 health hazard

Repr. 1B H360FD May damage fertility. May damage the unborn child.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the GB CLP regulation.

· **Hazard pictograms**



GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**

boric acid

· **Hazard statements**

H360FD May damage fertility. May damage the unborn child.

· **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection.
P201 Obtain special instructions before use.

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P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

Additional information:

Restricted to professional users.

· **2.3 Other hazards** No further relevant information available.**Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.2 Mixtures· **Description:** aqueous solution**Dangerous components:**

CAS: 10043-35-3 EINECS: 233-139-2 Index No: 005-007-00-2 Reg.nr.: 01-2119486683-25-XXXX	boric acid ⚠ Repr. 1B, H360FD	0.3–≤2.5%
CAS: 28048-33-1 EINECS: 248-797-6	disodium 4,4'-[3-(pyridin-2-yl)-1,2,4-triazine-5,6-diy]]bis(benzenesulphonate) ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	≤2.5%

SVHC

CAS: 10043-35-3 | boric acid

SVHC (UK)

CAS: 10043-35-3 | boric acid

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures· **General information** Instantly remove any clothing soiled by the product.· **After inhalation** Supply fresh air. Call a doctor.**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek medical advice.

After eye contact

Rinse opened eye for several minutes under running water (at least 15 min). If symptoms persist, consult doctor.

After swallowing

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed:

irritations

absorption

after absorption of large amounts:

diarrhoea

sickness

vomiting

CNS disorders

cardiovascular disorders

· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media· **Suitable extinguishing agents** Water, Carbon dioxide (CO₂), Foam, Fire-extinguishing powder**For safety reasons unsuitable extinguishing agents**

For this substance / mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

- The product is not combustible.
- Formation of toxic gases is possible during heating or in case of fire.
- Can be released in case of fire:
 - nitrous gases
 - Nitrogen oxides (NO_x)
 - Carbon monoxide (CO) and carbon dioxide (CO₂)

5.3 Advice for firefighters
Protective equipment:

- Wear self-contained breathing apparatus.
- Wear full protective suit.

Additional information

- Collect contaminated fire fighting water separately. It must not enter drains.
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 - Ambient fire may liberate hazardous vapours.
-

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel:

- Wear protective equipment. Keep unprotected persons away.
- Avoid substance contact.
- Ensure adequate ventilation

Advice for emergency responders: Protective equipment: see section 8

6.2 Environmental precautions:

- Do not allow product to reach sewage system or water bodies.
- Dilute with much water.

6.3 Methods and material for containment and cleaning up:

- Ensure adequate ventilation.
- Absorb with liquid-binding material (sand, diatomite, universal binders).
- Dispose of contaminated material as waste according to item 13.

6.4 Reference to other sections

- See Section 8 for information on personal protection equipment.
 - See Section 13 for information on disposal.
-

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: No special precautions necessary if used correctly.

Hygiene measures:

- Do not get in eyes, on skin, or on clothing.
- Take off immediately all contaminated clothing.
- Store protective clothing separately.
- Wash hands during breaks and at the end of the work.
- Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and containers: Store in cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

- Store in a locked cabinet or with access restricted to technical experts or their assistants.
- Protect from heat and direct sunlight.
- Protect from the effects of light.
- Protect from humidity and keep away from water.

Recommended storage temperature: 20°C +/- 5°C

7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- **DNELs**
Derived No Effect Level (DNEL)

CAS: 10043-35-3 boric acid		
Oral	DNEL	0.98 mg/kg (Consumer / acute / systemic effects) 0.98 mg/kg (Consumer / long-term / systemic effects)
Dermal	DNEL	392 mg/kg (Worker / long-term /systemic effects) 196 mg/kg (Consumer / long-term / systemic effects)
Inhalative	DNEL	8.3 mg/m ³ (Worker / long-term /systemic effects) 4.15 mg/m ³ (Consumer / long-term / systemic effects)

- **PNECs**
Predicted No Effect Concentration (PNEC)

CAS: 10043-35-3 boric acid	
PNEC	10 mg/l (Sewage treatment plant) 2.02 mg/l (Marine water) 13.7 mg/l (Aquatic intermittent release) 2.02 mg/l (Fresh water)
PNEC	5.4 mg/kg (Soil)

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.
- **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Eye/face protection**
Safety glasses
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
- **Hand protection**
Protective gloves.
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level = 1 (< 10 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Other skin protection (body protection):** Protective work clothing.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P3
- **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **Physical state** Fluid
- **Form:** Solution
- **Colour:** Yellow tint
- **Odour:** Odourless
- **Odour threshold:** Not applicable.

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· Melting point/Freezing point:	Not determined.
· Boiling point or initial boiling point and boiling range	Not determined.
· Flammability	The product is not combustible.
· Explosive properties:	Product is not explosive.
· Lower and upper explosion limit	
Lower:	Not applicable.
Upper:	Not applicable.
· Flash point:	Not applicable.
· Auto-ignition temperature:	Not applicable.
· Decomposition temperature:	Not determined.
· pH at 20°C	5.6
· Kinematic viscosity	Not determined.
· Solubility	
· Water:	Fully miscible
· Partition coefficient n-octanol/water (log value)	Not applicable (mixture).
· Vapour pressure:	Not determined.
· Density and/or relative density	
· Density:	Not determined.
· Relative density:	Not determined.
· Relative gas density	Not determined.
· Particle characteristics	Not applicable (liquid).
· 9.2 Other information	
· Information with regard to physical hazard classes	
· Corrosive to metals	Void
· Other safety characteristics	
· Oxidising properties:	none
· Additional information	
· Solids content:	< 20 %
· Solvent content:	
· Organic solvents:	0 %
· Water:	> 80 %

SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
 - Reacts with alkali (lyes)
 - Reacts with strong oxidizing agents
- **10.4 Conditions to avoid** To avoid thermal decomposition do not overheat.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** see section 5

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

CAS: 10043-35-3 boric acid

Oral	LD50	2660 mg/kg (rat) (OECD 401) (GESTIS, ECHA registrant)
Dermal	LD50.	>2000 mg/kg (rat) (ECHA, registrant: no deaths occurred.)
	LD ₀	1500 mg/kg (child) (MERCK)
	NOAEL	9.6 mg/kg (rat) (NTP)

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CAS: 28048-33-1 disodium 4,4'-[3-(pyridin-2-yl)-1,2,4-triazine-5,6-diyl]bis(benzenesulphonate)

Oral | LD50. | >5000 mg/kg (rat)

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

Information on components:**CAS: 10043-35-3 boric acid**Irritation of skin | OECD 404 | (rabbit: no irritation)
(Registrant, ECHA)

Irritation of eyes | OECD 405 | (rabbit: slight irritation)

- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

Information on components:**CAS: 10043-35-3 boric acid**

Sensitisation | OECD 406 | (guinea pig: negative)

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** May damage fertility. May damage the unborn child.

Information on components:

OECD 414: Teratogenicity testing

OECD 473: Mutagenicity testing

OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 10043-35-3 boric acid

OECD 471 | (negative) (Bacterial Reverse Mutation Test - Ames test)

OECD 476 | (negative) (In Vitro Mammalian Cell Gene Mutation Test)
(mouse lymphomea test)OECD 414 | (negative) (oral, rat)
(ECHA, registrant: no evidence of developmental toxicity up to 55 mg/kg bw. At 76 mg/kg bw there was reduced fetal bodyweight, short and wavy ribs, and these effects disappeared during the postnatal period.)

OECD 474 | (negative) (in vivo, mice)

- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

Information on likely routes of exposure

"Under occupational conditions, the main intake pathway for boric acid (CAS 10043-35-3) proceeds via the respiratory tract. Furthermore, the uptake of the solid or its concentrated solutions should be expected following contact with damaged or inflamed skin." (GESTIS)

Additional toxicological information:

CAS 10043-35-3: Absorption through gastro-intestinal tract, mucous membranes

CAS: 10043-35-3 boric acid

(source: GESTIS)

Main toxic effects:

Acute: Slightly irritating to the eyes and skin; gastrointestinal disturbances, CNS-effects and (later) skin damage after massive poisoning

Chronic: Irritation to the mucous membranes following inhalative exposure, effects to the gastrointestinal tract and CNS

Further Information (Merck):

"Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, and erythematous lesions on the skin and mucous membranes.

Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma.

Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams."

"Liver - Irregularities - Based on Human Evidence"

- **11.2 Information on other hazards**
- **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
- **Other information**
Other dangerous properties can not be excluded.

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According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity:
CAS: 10043-35-3 boric acid

EC50	133 mg/l/48h (Daphnia magna) (ECOTOX)
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LC50	50–100 mg/l/96h (rainbow trout) (ECOTOX)
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12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 10043-35-3 boric acid

log Pow	-1.09 (.) (OECD 107, 22°C) (Merck)
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12.4 Mobility in soil No further relevant information available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

12.6 Endocrine disrupting properties The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects Avoid transfer into the environment.

Water hazard:

Do not allow product to reach ground water, water bodies or sewage system.

Danger to drinking water if even small quantities leak into soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to disposers of hazardous waste.

European waste catalogue

16 05 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals
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Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information

14.1 UN number or ID number

ADR, IMDG, IATA	Void
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14.2 UN proper shipping name

ADR, IMDG, IATA	Void
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14.3 Transport hazard class(es)

ADR, IMDG, IATA	Void
Class	

14.4 Packing group

ADR, IMDG, IATA	Void
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14.5 Environmental hazards:

Not applicable.

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· 14.6 Special precautions for user	Not applicable.
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
· Poisons Act UK
· Regulated explosives precursors

None of the ingredients is listed.

· Regulated poisons

None of the ingredients is listed.

· Reportable explosives precursors

None of the ingredients is listed.

· Reportable poisons

None of the ingredients is listed.

· Regulation (EU) 2019/1148 on the marketing and use of explosives precursors not regulated

· Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)

None of the ingredients is listed.

· Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:

None of the ingredients is listed.

· Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

· Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

· REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)

None of the ingredients is listed.

· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

None of the ingredients is listed.

· Substances of very high concern (SVHC) according to REACH, Article 57 see item 3 SVHC

· Substances of very high concern (SVHC) according to UK REACH see item 3 SVHC

· Directive 2012/18/EU (SEVESO III):
· Named dangerous substances - ANNEX I None of the ingredients is listed.

· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 30

· Information about limitation of use:

Employment restrictions concerning young persons must be observed (94/33/EC).

Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC).

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

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· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**

H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H360FD May damage fertility. May damage the unborn child.

· **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development
 STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure
 EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 DNEL: Derived No-Effect Level (UK REACH)
 PNEC: Predicted No-Effect Concentration (UK REACH)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 SVHC: Substances of Very High Concern
 vPvB: very Persistent and very Bioaccumulative
 Skin Irrit. 2: Skin corrosion/irritation – Category 2
 Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
 Repr. 1B: Reproductive toxicity – Category 1B
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Data arise from safety data sheets, reference works and literature.
 ECHA: European CHemicals Agency <http://echa.europa.eu>
 GESTIS- Stoffdatenbank (Substance Database, Germany)
 IUCLID (International Uniform Chemical Information Database)

· *** Data compared to the previous version altered.**
