

SAFETY DATA SHEET

In accordance with 453/2010 and 1272/2008

(All references to EU regulations and directives are abbreviated into only the numeric term)

Issued 11.01.2024

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name

DS 650 C

Supplier's product number

760650C

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

Identified uses

Making printed circuit board

1.3. Details of the supplier of the safety data sheet

Company: Bungard Elektronik GmbH & Co. KG

Address: Rilkestraße 1

D - 51570 Windeck

Tel.: +49/2292/92828-0

Fax: +49/2292/92828-29

E-Mail: info@bungard.de

1.4. Emergency telephone number

Medical Emergency information in case of poisoning: Poison Information Center Mainz – 24h – Phone: +49 6131 19240

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification in accordance with 1272/2008

Corrosive (Category 1B)

Irreversible Eye Effects (Category 1)

Toxic to aquatic life with long lasting effects (Category Cron 2)

2.2. Label elements

Label information in accordance with 1272/2008

Hazard pictograms



Signal words

Danger

Hazard statements

H314

Causes severe skin burns and eye damage

H411

Toxic to aquatic life with long lasting effects

Precautionary statements

P301+P330+P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P303+P361+P353

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P305+P351+P338

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

P310

Immediately call a a POISON CENTER or doctor/physician

2.3. Other hazards

Not relevant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is composed of a homogeneous aqueous solution.

3.2. Mixtures

Note that the table shows known hazards of the ingredients in a pure form. These hazards are reduced or eliminated when mixed or diluted, see Section 16d.

Constituent	Classification	Concentration
2-AMINOETHANOL		
CAS No 141-43-5 EC No 205-483-3 Index No 603-030-00-8	Acute Tox 4 <i>dermal</i> , Acute Tox 4 <i>oral</i> , Acute Tox 4 <i>vapour</i> , Skin Corr 1B; H312, H302, H332, H314	10 - 15%
SODIUM HYDROXYDE SOLUTION		
CAS No 1310-73-2 EC No 215-185-5	Skin Corr 1A, Eye Dam 1; H314, H318	1 - 5%
COPPER(II) SULFATE ANHYDROUS		
CAS No 7758-98-7 EC No 231-847-6 Index No 029-004-00-0	Acute Tox 4 <i>oral</i> , Skin Irrit 2, Eye Irrit 2, Aquatic Acute 1, Aquatic Chronic 1; <i>M</i> = 1; H302, H315, H319, H400, H410	1 - 5%

Explanations to the classification and labelling of the ingredients are given in Section 16e. Official abbreviations are printed in normal font. Text in italics are specifications and/or complement used in the calculation of the hazards of this mixture, see Section 16b.

Also contains component(s) not necessary to label.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Generally

Flush contaminated parts of the body immediately with large quantities of water. In case of large injuries, larger than the palm of a hand, or if the the face has been exposed to the product, transport the person to hospital immediately.

Immediately call a POISON CENTER or doctor/physician.

Never leave a injured person alone. Their condition may rapidly worsen, sometimes several hours after the poisoning.

Upon breathing in

Let the injured person rest in a warm place with fresh air or oxygen tank, and arrange to have them transported immediately to a hospital.

Contact a physician even without immediate symptoms. Preventative treatment against life-threatening deterioration (pulmonary oedema) can be needful immediately.

Upon breathing of large amounts of smoke, fog or dust, rinse nose, mouth and throat with water; If symptoms occur, call a doctor/physician.

Upon contact with the eyes

If possible immediately remove contact lenses.

Important! Also flush during transport to hospital (eye specialist).

Immediately rinse with lukewarm water for 15 - 20 minutes with eyes kept wide open; If symptoms persist, call a doctor/physician.

Remove solid particles.

Upon skin contact

Remove contaminated clothes.

Normal washing of the skin is considered sufficient; If nevertheless symptoms do occur, contact a physician.

Upon ingestion

No specific action is considered to be needed; As a precaution, induce vomiting and call a doctor/physician.

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

Information on symptoms are ambiguous or missing for this product.

4.3. Indication of any immediate medical attention and special treatment needed

Not relevant.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Recommended extinguishing agents

All normal extinguishing agents may be used.

Unsuitable extinguishing agents

Among common extinguishing agents there are none that are overtly unsuitable.

5.2. Special hazards arising from the substance or mixture

Corrosive gases can be dispersed in case of fire.

Produces fumes containing harmful gases (carbon monoxide and carbon dioxide) when burning, and, in case of incomplete combustion, aldehydes and other toxic, harmful, irritant or environmentally harmful substances. On contact with metals hydrogen gas may form, which can be explosive on being mixed with air.

Note that the extinguishing water may be corrosive.

Note, risk for discharge of environmentally harmful substances.

5.3. Advice for fire-fighters

When extinguishing fire, wear total-coverage clothing which protects against corrosive substances.

In case of fire use a respirator mask.

Protective measures should be taken regarding other material at the site of the fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Gas mask with a B filter (grey) or a dust filter IIb (P2) may be required when decontaminating after spillage.

Use a chemical protection suit when cleaning up large spills.

Dust filter IIb (P2) may be required when cleaning up.

Upon small spillage < 5 kg Vacate the area and ventilate the fumes.

Avoid inhalation and exposure to skin and eyes.

Note that the rinsing-water may be corrosive.

Avoid discharge into sewers.

In case of spillage in protected water, call the emergency services immediately, tel. 112 (in Europe).

Do not allow the product to flow into the sewer; if this should occur however, contact your local sewer service immediately.

Upon substantial spillage 1 - 50 tonnes into a river or lake, contact the emergency services, tel 112.

Avoid emissions into soil, water or air.

6.2. Environmental precautions

Avoid discharge into soil, water or air.

Avoid discharge into sewers.

Dam up the spillage to prevent it reaching street sewers or flowing into the ground.

To neutralise discharge, contact the emergency services. Present this safety data sheet.

Always contact the fire department when accidental spillage of this product occurs. Show this safety data sheet.

6.3. Methods and material for containment and cleaning up

Clean-up of repeated spillages, or larger spillages of this product, should be executed by professional decontamination workers.

Wash off with large quantities of water (50-100 volume parts). Dry up afterwards.

To be collected with caution and transported to a waste disposal facility.

Do not try to clean up yourself, unless you are properly trained for decontaminating this product.
Discharge of this product may jeopardize the tenacity of the building and other construction material, causing buildings to collapse.
Residues left behind after cleaning shall be treated as hazardous waste. For further information, contact the local authority sanitisation works. Present this safety data sheet.

6.4. Reference to other sections

See section 8 and 13 for personal protection equipment and disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

When working with dangerous substances a fume cupboard ought to be used, or else utilise a space which is well ventilated.

Keep out of reach of children and pets.

The product should be stored in a manner which prevents hazards to health and the environment. Avoid exposure to humans and animals and do not discharge the product in a sensitive environment.

Store this product separately from food items and keep it out of the reach of children and pets.

Do not eat, drink or smoke in premises where this product is stored.

Work in order to avoid spillage. If spillage does occur, address it immediately in accordance with the directions specified in Section 6 of this safety data sheet.

Avoid discharge into soil, air and water.

Consult the county sewage plant about discharge restrictions into the sewers.

7.2. Conditions for safe storage, including any incompatibilities

Do not store above normal room temperature.

Handle in a premises which is well ventilated.

Handle in a fume cupboard or in a space which is equally safe.

Store in a well ventilated cupboard approved for bases, not above eye-level.

An evacuation plan should be available and evacuation routes must not be blocked.

Emergency showers and eye-rinsing facilities must be available at the workplace.

The package should be kept in plastic bins in order to prevent corrosive injuries from spillage.

Store only in the original package.

7.3. Specific end uses

Not relevant.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. National limit values, United Kingdom

All ingredients (cf. Section 3) lack occupational exposure limit values.

8.2. Exposure controls

In terms of minimizing risks, attention must be paid to the health hazards (see Sections 2, 3 and 10) of this product or any of its ingredients according to EU directives 89/391 and 98/24 and national occupational legislation.

Never use contact lenses when working with this substance.

Use protective gloves of butyl rubber, Viton or fluorine rubber, or get advice from an occupational medical expert about alternative materials. Show this safety data sheet.

Work without protective gloves should only occur when very small amounts are handled.

Choose a mechanical wear strength in line with the nature of the work in accordance to this pictogram with four digits that indicate resistance against abrasion, cutting effects, tear and puncture, where 1 is the lowest and 4 or 5 is the best.



Protect all exposed skin from coming into contact with the product.

A respiratory mask of the B filter type (grey, for inorganic gases and fumes) may be required.

For limitation of environmental exposure, see Section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a) Appearance	Form: liquid Colour: blue
b) Odour	Not applicable
c) Odour threshold	Not applicable
d) pH	13-14
e) Melting point/freezing point	Not applicable
f) Initial boiling point and boiling range	Not applicable
g) Flash point	Not applicable
h) Evaporation rate	Not applicable
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	Not applicable
k) Vapour pressure	Not applicable
l) Vapour density	Not applicable
m) Relative density	1.00-1.05 kg/L
n) Solubility	Solubility in water: Unlimited solubility
o) Partition coefficient: n-octanol/water	Not applicable
p) Auto-ignition temperature	Not applicable
q) Decomposition temperature	Not applicable
r) Viscosity	Not applicable
s) Explosive properties	Not applicable
t) Oxidising properties	Not applicable

9.2. Other information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The product contains no substances which can lead to hazardous reactions at normal use.

10.2. Chemical stability

The product is stable at normal storage and handling conditions.

10.3. Possibility of hazardous reactions

Not indicated

10.4. Conditions to avoid

Not indicated

10.5. Incompatible materials

Not indicated

10.6. Hazardous decomposition products

Not indicated

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

General or unspecific toxicity

The main risk with this product is its corrosive properties.

Note that the product is, or contains, a substance that is hazardous to the environment.

Repeated dose toxicity

Risk for pulmonary edema after six hours to a few days.

Sensibilisation

Eczema (atopical or unidentified) may occur.

Corrosive and irritating effects

The product is corrosive. Skin injuries may occur in less than a minute, eye injuries in seconds.

Synergism and antagonism

Enhances the risk of allergy for other substances.

Effect on human microflora

Effects on human microflora have not been proven, or are negligible.

Relevant toxicological properties**2-AMINOETHANOL**

LD50 rabbit (Dermally) 24h = 1025 mg/kg

LD50 rat (Orally) 24h = 1720 mg/kg

COPPER(II) SULFATE ANHYDROUS

LD50 rat (Orally) 24h = 300 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

2-AMINOETHANOL

LC50 Rainbow trout (*Oncorhynchus mykiss*) 96h = 150 mg/L

EC10 Bacteria 17h = 87 mg/l

LC50 Bluegill (*Lepomis macrochirus*) 96h = 329 mg/l

EC50 Algae 72 h = 15 mg/l

EC50 Freshwater water flea (*Daphnia magna*) 24h 120 - 140 mg/L

COPPER(II) SULFATE ANHYDROUS

EC50 Freshwater water flea (*Daphnia magna*) 48 h = 0.82 mg/l

IC50 Algae 72h = 0.02 mg/l

At the quantities with which this product is used, environmental effects are limited to the local environment.

Avoid all emissions into the natural surrounding environment.

12.2. Persistence and degradability

No information about persistence or degradability exists but there is no reason to suppose that the product is persistent.

12.3. Bioaccumulative potential

No information exists on bioaccumulation, but there is no cause for concern in respect of this.

12.4. Mobility in soil

No information about mobility in the nature exists but there is no reason to suppose the product to be ecologically harmful because of this.

This product is intended to be used at such small quantities that biodegradability is not an issue. Contact the manufacturer for more information if larger quantities are used.

12.5. Results of PBT and vPvB assessment

Not indicated

12.6. Other adverse effects

Not indicated

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste handling for the product

The product is corrosive and the waste thereof should be considered hazardous (if this is not neutralised). Also take local regulations for dealing with waste into account.

The product is hazardous to the environment and the waste thereof should be considered hazardous material (if this is not treated so that this risk be eliminated).

Recycling of the product

This product is not usually recycled.

Transportation of waste

Not indicated

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

ADR/RID: 3266 IMDG: 3266 IATA: 3266

14.2. UN proper shipping name

ADR/RID: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.(2-AMINOETHANOL)

IMDG: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.(2-AMINOETHANOL)

IATA: Corrosive Liquid, Basic, Inorganic, N.O.S.(2-AMINOETHANOL)

14.3. Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

Labels



14.4. Packing group

Packing group: II

14.5. Environmental hazards

See section 2 and 12.

14.6. Special precautions for user

Tunnel restrictions

Tunnel category: E.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

14.8 Other transport information

Transport category: 2; Highest total quantity per transported unit 333 kg or liters.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Not applicable.

15.2. Chemical safety assessment

Chemical safety report according to 1907/2006 Annex I is not required for this product.

SECTION 16: OTHER INFORMATION

16a. Indication of where changes have been made to the previous version of the safety data sheet

Revisions of this document

Earlier versions

2011-05-25 Revisions of this document has, where not otherwise stated, been caused by changes in the regulations

16b. Legend to abbreviations and acronyms used in the safety data sheet

Full texts for Hazard Class and Category Code mentioned in section 3

Acute Tox 4 <i>dermal</i>	Acute toxicity (Category 4 skin)
Acute Tox 4 <i>oral</i>	Acute toxicity (Category 4 oral)
Acute Tox 4 <i>vapour</i>	Acute toxicity (Category 4 vapours)
Skin Corr 1B	Corrosive (Category 1B)

Skin Corr 1A	Corrosive (Category 1A)
Eye Dam 1	Irreversible Eye Effects (Category 1)
<i>No phys haz</i>	Non-assigned physical hazard
Skin Irrit 2	Skin Irritant (Category 2)
Eye Irrit 2	Irritates eyes (Category 2)
Aquatic Acute 1	Very toxic to aquatic life (Category Acute 1)
Aquatic Chronic 1; $M = 1$	Very toxic to aquatic life with long lasting effects to aquatic environments (Category Cron 1)

Comprehensive definition of the hazards mentioned in Section 2

Skin Corr 1B

On the basis of the results of animal testing, the substance is classified as corrosive, subcategory 1B according to 1272/2008 Annex I), i.e. visible necrosis through the epidermis and into the dermis, in at least 1 of 3 tested animals after exposure lasting more than 3 minutes but not more than 1 hour. Corrosive reactions are typified by ulcers, bleeding, bloody scabs and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia and scars

Eye Dam 1

If, when applied to the eye of an animal, a substance produces at least in one animal effects on the cornea, iris or conjunctiva that are not expected to reverse or have not fully reversed within an observation period of normally 21 days and/or at least in 2 of 3 tested animals, a positive response of:

- corneal opacity ≥ 3 and/or

- iritis $> 1,5$

calculated as the mean scores following grading at 24, 48 and 72 hours after application of the test material

Aquatic Chronic 2

Chronic (long-term) aquatic hazard:

96 hr LC50 (for fish) 1-10 mg/l and/or

48 hr EC50 (for crustacea) 1-10 mg/l and/or

72 or 96 hr ErC50 (for algae or other aquatic plants) 1-10 mg/l and the substance is not rapidly biodegradable and/or the experimentally determined BCF ≥ 500 (or, if absent, the log Kow ≥ 4), unless the chronic toxicity NOECs are > 1 mg/l

Explanations of the abbreviations in Section 14

ADR European Agreement concerning the International Transport of Dangerous Goods by Road

RID Regulations concerning the International Transport of Dangerous Goods by Rail

Tunnel restriction code: E; Passage through category E tunnels is strictly forbidden.

Transport category: 2; Highest total quantity per transported unit 333 kg or liters.

16c. Key literature references and sources for data

Sources for data

Primary data for the calculation of the hazards has preferentially been taken from the official European classification list, 1272/2008 Annex I , as updated to 2015-09-16.

Where such data was lacking, on the second hand the documentation on which this official classification is based was used, e.g. IUCLID (International Uniform Chemical Information Database). On the third hand, information was used from reputable international chemical suppliers, and on the fourth hand from other available information, e.g. safety data sheets from other suppliers or information from non-profit associations, whereby the reliability of the source was judged by an expert. If, in spite of this, reliable information was not found, the hazards were judged by expert opinions based on the known properties of similar substances, and according to the principles in 1907/2006 and 1272/2008.

Full texts for Regulations mentioned in this Safety Data Sheet

453/2010 COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

1272/2008 REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL 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
- 89/391 COUNCIL DIRECTIVE (89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
- 98/24 COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)
- 1907/2006 REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC Annex I

16d. Methods of evaluating information referred to in 1272/2008 Article 9 which was used for the purpose of classification

The calculation of the hazards of this mixture has been performed as an evaluation by applying a weight of evidence determination using expert judgement in accordance with 1272/2008 Annex I, weighing all available information having a bearing on the determination of the hazards of the mixture, and in accordance with 1907/2006 Annex XI.

16e. List of relevant hazard statements and/or precautionary statements

Full texts for hazard statements mentioned in section 3

- H312 Harmful in contact with skin
- H302 Harmful if swallowed
- H332 Harmful if inhaled
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

16f. Advice on any training appropriate for workers to ensure protection of human health and the environment

Warning for misuse

This product can cause harm if used improperly. The manufacturer, the distributor or the supplier are not responsible for adverse effects if the product is not handled in accordance with the directions for use.

Other relevant information

Directions for use

Directions for use is distributed with the product

Editorial information