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

1.1 Product identifiers
   - Product name: Formate Dehydrogenase, from *Candida boidinii*
   - Product Number: F8649
   - Brand: Sigma
   - REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
   - CAS-No.: 9028-85-7

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
   - Company: Sigma-Aldrich Chemie BV
     Stationsplein 4
     3331 LL ZWIJNDRECHT
     NETHERLANDS
   - Telephone: +31 78-620-5411
   - Fax: +31 78-620-5421
   - E-mail address: eurtechserv@sial.com

1.4 Emergency telephone number
   - Emergency Phone #: +(31)-858880596 (CHEMTREC)
     112 (Alarmnummer)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   - Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
   - This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements
   - The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

3.1 Substances
   - Synonyms: Formate:NAD+ oxidoreductase
     FDH
   - CAS-No.: 9028-85-7
   - EC-No.: 232-844-2
   - No components need to be disclosed according to the applicable regulations.
SECTION 4: First aid measures

4.1 Description of first aid measures

 If inhaled
 If breathed in, move person into fresh air. If not breathing, give artificial respiration.

 In case of skin contact
 Wash off with soap and plenty of water.

 In case of eye contact
 Flush eyes with water as a precaution.

 If swallowed
 Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
 The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
 no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

 Suitable extinguishing media
 Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
 Nature of decomposition products not known.

5.3 Advice for firefighters
 Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
 no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
 Avoid dust formation. Avoid breathing vapors, mist or gas.
 For personal protection see section 8.

6.2 Environmental precautions
 Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
 Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
 For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
 Provide appropriate exhaust ventilation at places where dust is formed.
 For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
 Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
 Recommended storage temperature: 2 - 8 °C

7.3 Specific end use(s)
 A part from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Components with workplace control parameters

8.2 Exposure controls
Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de,
test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
Form: powder, lyophilized
Colour: beige

b) Odour
no data available

c) Odour Threshold
no data available
d) pH no data available

e) Melting point/freezing point no data available

f) Initial boiling point and boiling range no data available

g) Flash point no data available

h) Evaporation rate no data available

i) Flammability (solid, gas) no data available

j) Upper/lower flammability or explosive limits no data available

k) Vapour pressure no data available

l) Vapour density no data available

m) Relative density no data available

n) Water solubility no data available

o) Partition coefficient: n-octanol/water no data available

p) Auto-ignition temperature no data available

q) Decomposition temperature no data available

r) Viscosity no data available

s) Explosive properties no data available

t) Oxidizing properties no data available

9.2 Other safety information
   no data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   no data available

10.2 Chemical stability
   Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   no data available

10.4 Conditions to avoid
   no data available

10.5 Incompatible materials
   no data available

10.6 Hazardous decomposition products
   Other decomposition products - no data available
   In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects
   Acute toxicity
   no data available
Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: Not available
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: -   IMDG: -   IATA: -
14.2  UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: -
IMDG: -
IATA: -

14.4 Packaging group
ADR/RID: -
IMDG: -
IATA: -

14.5 Environmental hazards
ADR/RID: no
IMDG Marine Pollutant: no
IATA: no

14.6 Special precautions for user
no data available

SECTION 15: Regulatory information
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information
Further information
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