

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Name** Betain® S4  
**Material Number** M54E0  
**Synonyms** 1-Carboxy-N,N,N-trimethylmethan-aminium hydroxide inner salt. Trimethylglycine.

**Recommended use** Animal feed

**Company/undertaking identification:** Danisco Animal Nutrition  
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Marlborough  
Wiltshire SN81XN  
United Kingdom  
Tel: +441672 517777

**Manufacturer** Finnfeeds Finland Ltd.  
Naantali Plant  
Satamatie 2  
FI-21100 Naantali  
Finland

**E-mail address** SDS.Genencor@Danisco.com  
**Emergency telephone:** +358 10 431 020 (Monday - Friday 8-17 (+2 GMT))

## 2. HAZARDS IDENTIFICATION

This product is not classified as dangerous according to the CLP Regulation (EC) No 1272/2008. (During the transitional period the Dangerous Substance Directive 67/568/EEC and the Dangerous Preparation Directive 99/45/EC, remains applicable).

**Primary Routes of Exposure** Inhalation  
Skin contact  
Eye contact

**Properties affecting health** Continuous breathing of dust, like any dust, may cause allergic type reactions in sensitive persons. Due to the hygroscopic nature of the dry product, avoid prolonged contacts with skin, eyes and mucous membranes.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Description** Betaine anhydrous with anti-caking agent preparation.

Chemical Name	%	CAS-No	EINECS-No	REACH No	Hazardous classification	IUB Code	Notes
Betaine Anhydrous	min 93 d.s.	107-43-7	203-490-6	-	NE	-	
Calcium stearate	min 3	1592-23-0	216-472-8	-	NE	-	

**Note:**  
d.s. = Dry Solid  
NE = Not established

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**4. FIRST AID MEASURES**

<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.
<b>Skin contact</b>	Wash off immediately with plenty of water. If skin irritation persists, call a physician.
<b>Ingestion</b>	Clean mouth with water and afterwards drink plenty of water.
<b>Inhalation</b>	Move to fresh air.

**5. FIRE-FIGHTING MEASURES**

<b>Suitable extinguishing media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide
<b>Extinguishing media which must not be used for safety reasons</b>	None in particular.
<b>Specific hazards during fire fighting</b>	If overheated, the risk for formation of decomposition products (trimethylamine, ketene). Formation of nitrous vapours in combustion.
<b>Special protective equipment for fire-fighters</b>	Wear self-contained breathing apparatus and protective suit.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	Avoid contact with the skin and the eyes. Avoid dust formation.
<b>Environmental precautions</b>	No special environmental precautions required
<b>Methods for cleaning up</b>	Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. After cleaning, flush away traces with water.

**7. HANDLING AND STORAGE**

<b>Handling</b>	Avoid dust formation. Avoid inhalation, ingestion and contact with skin and eyes.
<b>Technical measures/Precautions</b>	Provide appropriate exhaust ventilation at places where dust is formed.
<b>Storage</b>	Keep container tightly closed and dry.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**
**Exposure limits**

Chemical Name	Denmark	Finland	Norway	Sweden	The Netherlands
Calcium stearate				LLV: 5 mg/m <sup>3</sup>	
Other dusts of organic origin	TWA: 3 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>			

Chemical Name	Russia	Estonia	Latvia	Lithuania	Poland
Calcium stearate				IPRV 3 mg/m <sup>3</sup>	
Other dusts of organic origin		TWA 5 mg/m <sup>3</sup>			

**Occupational exposure controls**

**Engineering measures** Ensure adequate ventilation. Local exhaust ventilation of dust at the point of generation.

**Hygiene measures** Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice.

**Personal protective equipment**

**Respiratory protection** In case of insufficient ventilation: Effective dust mask.  
**Eye protection** Safety glasses with side-shields.  
**Skin and body protection** Wear suitable protective clothing, gloves and eye/face protection  
**Hand protection** Protective gloves.

**Environmental exposure controls** Not regulated

**9. PHYSICAL AND CHEMICAL PROPERTIES**
**General Information**

**Physical state** Crystalline solid.  
**Appearance** Light brown  
**Odour** Characteristic

**Other information:**

<b>pH</b>	7-10 (5% solution)	<b>Flash point</b>	Non-combustible.
<b>Boiling Point/Range</b>	Not applicable.	<b>Autoignition temperature</b>	No information available
<b>Vapour pressure</b>	Not applicable	<b>Viscosity</b>	Not applicable
<b>Water solubility</b>	160 g / 100g (in water, 25°C)	<b>Evaporation rate</b>	Not applicable
<b>Dust explosion concentration (g/m<sup>3</sup>), low</b>	60	<b>Kst Value (bar.m/s):</b>	234
<b>Maximum rate of pressure rise (bar/s)</b>	864	<b>Explosion Severity (bar):</b>	8.9
<b>Flammability Limits in Air</b>	No information available	<b>Explosion limits</b>	No information available

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10. STABILITY AND REACTIVITY

- Stability** Stable under normal conditions.
- Conditions to avoid** Very hygroscopic; protect from moisture.
- Materials to avoid** Strong bases.
- Hazardous decomposition products** Risk for formation of trimethylamine in hot, strongly alkaline solution.

11. TOXICOLOGICAL INFORMATION

**Product Information**

Product does not present an acute toxicity hazard based on known information.

- Ingestion** Generally regarded as safe by ingestion.
- Inhalation** Inhalation of dust in high concentration may cause irritation of respiratory system.
- Skin contact** Prolonged or repeated contact may dry skin and cause irritation.
- Eye contact** Dust contact with the eyes can lead to mechanical irritation.
- Sensitization** Continuous breathing of dust, like any dust, may cause allergic type reactions in sensitive persons.

12. ECOLOGICAL INFORMATION

- Ecotoxicity effects** Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.
- Mobility** The product is water soluble, and may spread in water systems.
- Persistence and degradability** Readily biodegradable, according to appropriate OECD test. Biological degradation (28d): 88% (Betaine)
- Bioaccumulative potential** Bioaccumulation is unlikely.
- Component Information** Component information below is as complete as possible. Any fields not shown indicate no data is presently available.  
The ecotox data is based on 50% betaine solution.

Chemical Name	log Pow	Chemical Oxygen Demand (COD)	Biochemical Oxygen Demand (BOD)	Bioconcentration factor (BCF)	Dissolved organic carbon (DOC)
Betaine Anhydrous		14 mg/g (Cr)	BOD5 ATU: 720 mg/g		300 mg/g

**13. DISPOSAL CONSIDERATIONS**

**Waste from residues / unused products** Dispose of contents/container in accordance with local regulation

**14. TRANSPORT INFORMATION**

**Dangerous goods** Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR.

**15. REGULATORY INFORMATION**

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**Germany**  
**Water Endangering Classes (WGK):** WGK: 1

**16. OTHER INFORMATION****Full text of R-phrases referred to under sections 2 and 3**

**Issuing date** 02/01/2007

**Revision Date** 17/03/2010

**The following has been revised since the last issue of this MSDS:**  
2. 3.

**This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006**

**Disclaimer**

**The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text**

**End of Safety Data Sheet**