Fe-DTPA 7%

SDS = Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Issue date: 9/9/2011 Revision date: 1/14/2021 Supersedes version of: 10/13/2017 Version: 3.0

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

1.1. Product identifier

Product form	:	Substance
Trade name	:	Fe-DTPA 7%
IUPAC name	:	disodium [N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycinato(5-)]ferrate(2-)
EC-No.	:	243-136-8
CAS-No.	:	19529-38-5
REACH registration No	:	01-2119963946-19
Product code	:	100.126.000
Type of product	:	Pure substance
Formula	:	C14H18FeN3O10.2Na
Synonyms	:	(oligo) iron-DTPA / combi mixtures / diethylenetriaminepentaacetic acid, ferric disodium complex / disodium [N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycinato(5-)]ferrate(2-) / dissolvine D-Fe-3 / dissolvine D-Fe-7 / FeDTPA / ferrate(2-), [N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycinato(5-)]-, disodium, (PB-7-13-12564)- / fervent Iron chelate DTPA / iron chelate DTPA / iron(3+) ion disodium 2-[bis({2-[bis(carboxymethyl)amino]ethyl})amino]acetate
BIG No	:	56993

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

1.2.1. Relevant identified uses

Main use category	:	Industrial use,Professional use
Use of the substance/mixture	:	Fertiliser
Function or use category	:	Fertilisers

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Biron B.V.
De Vecht 5
8253 PH Dronten - The Netherlands
T +31 (0)321 336 730
Info@biron.nl - www.biron.nl

1.4. Emergency telephone number

Emergency number	:	National Poisons Information Service +44 870 600 6266 worldwide: http://www.who.int/ipcs/poisons/centre/directory/en

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

This substance is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
No labelling applicable

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
disodium [N,N-bis[2-[bis(carboxymethyl)amino]ethyl]glycinato(5-)]ferrate(2-)	(CAS-No.) 19529-38-5 (EC-No.) 243-136-8 (REACH-no) 01-2119963946-19	100	Not classified

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : No effects known.
Symptoms/effects after skin contact : No effects known.
Symptoms/effects after eye contact : No effects known.
Symptoms/effects after ingestion : No effects known.
Chronic symptoms : No effects known.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.
Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD: Non-flammable. INDIRECT FIRE HAZARD: Heating increases the fire hazard.
Explosion hazard : No direct explosion hazard.
Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide) and formation of metal oxides.

5.3. Advice for firefighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.
Protection during firefighting	:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Avoid raising dust. Avoid all unnecessary exposure. Avoid inhalation of product. Do not get in eyes, on skin, or on clothing. Provide adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves (EN 374). Protective clothing (EN 14605 or EN 13034). Dust cloud production: compressed air apparatus (EN 136 + EN 137).
Emergency procedures	:	Ventilate spillage area.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Protective clothing. Concerning personal protective equipment to use, see section 8. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	:	Mechanically recover the product.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See section 1 for emergency contact information. Concerning personal protective equipment to use, see item 8. Concerning disposal elimination after cleaning, see item 13. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.
Storage conditions	:	Store in a well-ventilated place. Keep cool.
Heat and ignition sources	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: (some) metals. water/moisture. (strong) acids. (strong) bases.
Storage area	:	Store in a dry area. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: polyethylene. polypropylene. steel with rubber inner lining. MATERIAL TO AVOID: aluminium. zinc. stainless steel. monel steel. nickel. copper.

7.3. Specific end use(s)

Fertilisers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

Fe-DTPA 7% (19529-38-5)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	62500 mg/kg bw/day
Long-term - systemic effects, inhalation	22 mg/m³
Long-term - local effects, inhalation	10 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	6.25 mg/kg bw/day
Long-term - systemic effects, inhalation	5.5 mg/m³
Long-term - systemic effects, dermal	31250 mg/kg bw/day
Long-term - local effects, inhalation	2.5 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	6.2 mg/l
PNEC aqua (marine water)	0.62 mg/l
PNEC aqua (intermittent, freshwater)	3.1 mg/l
PNEC (Soil)	
PNEC soil	1.23 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	50 mg/l

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station. Facilities: shower, eye shower.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:			
Safety glasses			
Type	**Field of application**	**Characteristics**	**Standard**
Safety glasses			EN 166

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:					
Protective gloves					
Type	**Material**	**Permeation**	**Thickness (mm)**	**Penetration**	**Standard**
Disposable gloves	Latex, Nitrile rubber				EN ISO 374

Other skin protection **Materials for protective clothing:**
GIVE EXCELLENT RESISTANCE: nitrile rubber

8.2.2.3. Respiratory protection

Respiratory protection:			
In case of insufficient ventilation, wear suitable respiratory equipment			
Device	**Filter type**	**Condition**	**Standard**
Filtering Half-face mask	Type P2		EN 143

8.2.2.4. Thermal hazards
No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Solid. Grains.
Molecular mass	:	490.13 g/mol
Colour	:	Yellow to brown.
Odour	:	Odourless.
Odour threshold	:	No data available
pH	:	5 – 7 1% Solution
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	Not applicable (decomposes), OECD 102: Melting Point/Melting Range
Freezing point	:	Not applicable
Boiling point	:	No data available
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable

Decomposition temperature	:	159 °C (OECD 102: Melting Point/Melting Range)
Flammability (solid, gas)	:	Non flammable.
Vapour pressure	:	107 hPa (55 °C, 27 %, Aqueous solution)
Relative vapour density at 20 °C	:	Not applicable (solid)
Relative density	:	1.18 – 1.6 (20 °C, OECD 109: Density of Liquids and Solids)
Density	:	1.183 – 1599 kg/m³ (20 °C)
Solubility	:	Soluble in water. Substance sinks in water. Water: 27 % (20 °C)
Partition coefficient n-octanol/water (Log Pow)	:	-11.9 (Calculated, KOWWIN)
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	Not applicable (solid)
Explosive properties	:	Not explosive.
Oxidising properties	:	Not oxidising.
Explosive limits	:	Not applicable
Particle size	:	196 µm

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Dust may form explosive mixture in air.

10.4. Conditions to avoid

Heat. Moisture.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

carbon oxides. Nitrogen oxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

Fe-DTPA 7% (19529-38-5)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 15 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Read-across, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 5.08 mg/l air (OECD 436: Acute inhalation toxicity-acute toxic class method, 4 h, Rat, Male / female, Read-across, Inhalation (dust), 14 day(s))

Skin corrosion/irritation : Not classified
pH: 5 – 7 1% Solution

Serious eye damage/irritation : Not classified
pH: 5 – 7 1% Solution

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Fe-DTPA 7% (19529-38-5)	
NOAEL (animal/male, F0/P)	500 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Fe-DTPA 7% (19529-38-5)	
NOAEL (oral, rat, 90 days)	500 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Aspiration hazard : Not classified

Fe-DTPA 7% (19529-38-5)	
Viscosity, kinematic	Not applicable

Potential adverse human health effects and symptoms : Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg),Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg),Not irritant to skin,Practically non-toxic by inhalation (LC50 inh, rat > 5 mg/l/4h),Not irritant to eyes

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Ecology - air : Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Photolysis in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Slightly harmful to crustacea. Slightly harmful to fishes. Groundwater pollutant. Inhibition of activated sludge. Slightly harmful to algae. Photolysis in water.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

Fe-DTPA 7% (19529-38-5)	
LC50 - Fish [1]	> 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Read-across, GLP)
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Read-across, GLP)
ErC50 algae	70.2 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Read-across, GLP)
LOEC (chronic)	134 mg/l Test organisms (species): other:Daphnia carinata Duration: '18 d'
NOEC (chronic)	67 mg/l Test organisms (species): other:Daphnia carinata Duration: '18 d'

NOEC chronic fish	100 mg/l Test organisms (species): other:Melanotaenia fluviatilis Duration: '28 d'

12.2. Persistence and degradability

Fe-DTPA 7% (19529-38-5)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

Fe-DTPA 7% (19529-38-5)	
Partition coefficient n-octanol/water (Log Pow)	-11.9 (Calculated, KOWWIN)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Fe-DTPA 7% (19529-38-5)	
Partition coefficient n-octanol/water (Log Koc)	1 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

Fe-DTPA 7% (19529-38-5)
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Empty containers should be taken for recycle, recovery or waste in accordance with local regulation. Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Remove waste in accordance with local and/or national regulations.

Product/Packaging disposal recommendations : Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Remove to an authorized waste treatment plant.

Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1 UN number

UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR)	:	Not applicable
Proper Shipping Name (IMDG)	:	Not applicable
Proper Shipping Name (IATA)	:	Not applicable
Proper Shipping Name (ADN)	:	Not applicable
Proper Shipping Name (RID)	:	Not applicable

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

ADN
Transport hazard class(es) (ADN) : Not applicable

RID
Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR)	:	Not applicable
Packing group (IMDG)	:	Not applicable
Packing group (IATA)	:	Not applicable
Packing group (ADN)	:	Not applicable
Packing group (RID)	:	Not applicable

14.5. Environmental hazards

Dangerous for the environment	:	No
Marine pollutant	:	No
Other information	:	No supplementary information available

14.6. Special precautions for user

Overland transport
Transport regulations (ADR) : Not subject

Transport by sea
Transport regulations (IMDG) : Not subject

Air transport
Transport regulations (IATA) : Not subject

Inland waterway transport
Transport regulations (ADN) : Not subject

Rail transport
Transport regulations (RID) : Not subject

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
Fe-DTPA 7% is not on the REACH Candidate List
Fe-DTPA 7% is not on the REACH Annex XIV List
Fe-DTPA 7% is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july 2012 concerning the export and import of hazardous chemicals.

Fe-DTPA 7% is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

Germany

Water hazard class (WGK)	:	WGK 2, Significantly hazardous to water (Classification according to AwSV)
Hazardous Incident Ordinance (12. BImSchV)	:	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)
Technical Instructions on Air Quality Control (TA Luft)	:	5.2.1 Total Dust, including Micro Dust

Netherlands

SZW-lijst van kankerverwekkende stoffen	:	The substance is not listed
SZW-lijst van mutagene stoffen	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	:	The substance is not listed

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:
Complete review of safety data sheet.

Abbreviations and acronyms:	
CLP	CLP = Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
REACH	REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
SDS	SDS = Safety Data Sheet
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	DMEL = Derived Minimal Effect level
DNEL	DNEL = Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration

LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	PNEC = Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	zPzB = Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Other information : DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.