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

1.1 Product identifier

grease
Article number: 28194, 28193, H-160013

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

1.2.1 Relevant uses

Lubricant

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Ferdinand Bilstein GmbH + Co. KG
Wilhelmstr. 47
58256 Ennepetal / GERMANY
Phone +49 2333 911-0
Fax +49 2333 911-444
Homepage www.febi.com
E-mail info@febi.com

Address enquiries to

Technical information info@febi.com

Safety Data Sheet info@febi.com

1.4 Emergency telephone number

Advisory body +49 (0)89-19240 (24h) (English)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

No classification.

2.2 Label elements

The product is required to be labelled in accordance with regulation CLP.

Hazard pictograms none

Signal word none

Hazard statements none

Precautionary statements none

Special labelling EUH210 Safety data sheet available on request.

Contains: Naphthenic acids, zinc salts. EUH208 May produce an allergic reaction.

2.3 Other hazards

Physico-chemical hazards No particular hazards known.

Human health dangers Frequent persistent contact with the skin can cause skin irritation.

Environmental hazards Does not contain any PBT or vPvB substances.
Contains no ingredients with endocrine-disrupting properties.

Other hazards none

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is a mixture.

Range [%]	Substance
1 - < 2.5	Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts
	CAS: 85940-28-9, EINECS/ELINCS: 288-917-4, Reg-No.: 01-2119521201-61-XXXX
	GHS/CLP: Eye Dam. 1: H318 - Skin Irrit. 2: H315 - Aquatic Chronic 2: H411
	SCL [%]: 15 - <20: Eye Irrit. 2: H319, 20 - 100: Eye Dam. 1: H318, 15 - 100: Skin Irrit. 2: H315
0.1 - < 1	Naphthenic acids, zinc salts
	CAS: 12001-85-3, EINECS/ELINCS: 234-409-2, Reg-No.: 01-2120783834-41-XXXX
	GHS/CLP: Eye Irrit. 2: H319 - Skin Sens. 1B: H317 - Aquatic Chronic 2: H411
0.1 - < 1	Dilithium tetraborate
	CAS: 12007-60-2, EINECS/ELINCS: 234-514-3, Reg-No.: 01-2120770724-49-XXXX
	GHS/CLP: Eye Dam. 1: H318 - Acute Tox. 4: H302 - Repr. 2: H361d
	SCL [%]: >= 3.8: Repr. 2: H361

Comment on component parts
Contains less than 3% w/w DMSO-extract (only for mineral oils)
Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Take off contaminated clothing and wash before reuse.

Inhalation
Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact
When in contact with the skin, clean with soap and water.
Consult a doctor if skin irritation persists.

Eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion
Seek medical advice immediately.
Do not induce vomiting.
Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Forward this sheet to your doctor.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam, dry powder, water spray jet, carbon dioxide

Extinguishing media that must not be used
Full water jet

5.2 Special hazards arising from the substance or mixture

Not combusted hydrocarbons.
Risk of formation of toxic pyrolysis products.
Carbon monoxide (CO)

5.3 Advice for firefighters

Do not inhale explosion and/or combustion gases.
Use self-contained breathing apparatus.

Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

High risk of slipping due to leakage/spillage of product.
Forms slippery surfaces with water.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up with absorbent material (e.g. general-purpose binder).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures necessary if used correctly.

Do not eat, drink or smoke when using this product.
Use barrier skin cream.
Wash hands before breaks and after work.
Cloths contaminated with product should not be kept in trouser pockets.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.
Prevent penetration into the ground.

Do not store together with food and animal food/diet.

Keep container tightly closed.
Keep container in a well-ventilated place.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

not relevant

DNEL

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
Industrial, dermal, Long-term - systemic effects, 9.6 mg/kg bw/d
Industrial, inhalative, Long-term - systemic effects, 6.6 mg/m³
general population, oral, Long-term - systemic effects, 0.19 mg/kg bw/d
general population, dermal, Long-term - systemic effects, 4.8 mg/kg bw/d
general population, inhalative, Long-term - systemic effects, 1.67 mg/m³
Naphthenic acids, zinc salts, CAS: 12001-85-3
Industrial, dermal, Long-term - systemic effects, 3.3 mg/kg bw/d (AF=30)
Industrial, inhalative, Long-term - systemic effects, 1.18 mg/m³ (AF=75)
general population, inhalative, Long-term - systemic effects, 0.29 mg/m³ (AF=150)
general population, oral, Long-term - systemic effects, 0.17 ng/kg bw/d (AF=600)
general population, dermal, Long-term - systemic effects, 1.7 mg/kg bw/d (AF=60)
Dilithium tetraborate, CAS: 12007-60-2
Industrial, dermal, Long-term - systemic effects, 333 mg/kg bw/D (AF= 30)
Industrial, inhalative, Long-term - systemic effects, 7.1 mg/m³ (AF= 12.5)
general population, oral, Long-term - systemic effects, 0.83 mg/kg bw/D (AF= 60)
general population, dermal, Long-term - systemic effects, 166 mg/kg bw/D (AF= 60)
general population, inhalative, Long-term - systemic effects, 1.74 mg/m³ (AF= 25)

PNEC

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
soil, 15.7 mg/kg dw
sediment (seawater), 1.93 mg/kg dw
sediment (freshwater), 19.3 mg/kg dw
sewage treatment plants (STP), 100 mg/l (AF=100)
seawater, 0.0002 mg/l (AF=10000)
freshwater, 0.002 mg/l (AF=1000)
Naphthenic acids, zinc salts, CAS: 12001-85-3
soil, 0.001 mg/kg dw
sediment (seawater), 0.002 mg/kg dw
sediment (freshwater), 0.015 mg/kg dw
sewage treatment plants (STP), 689.7 µg/L (AF= 1)
seawater, 0 mg/L (AF= 10000)
freshwater, 0.004 mg/L (AF= 1000)
Dilithium tetraborate, CAS: 12007-60-2
sewage treatment plants (STP), mg/L (AF= 10)

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
Eye protection	If there is a risk of splashing: safety glasses
Hand protection	The details concerned are recommendations. Please contact the glove supplier for further information. > 0.4 mm; Nitrile rubber, >480 min (EN 374-1/-2/-3). > 0.4 mm; Butyl rubber, >480 min (EN 374-1/-2/-3).
Skin protection	light protective clothing
Other	Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Avoid contact with eyes and skin.
Respiratory protection	Breathing apparatus in the event of aerosol or mist formation. Short term: filter apparatus, combination filter A-P1. (DIN EN 14387)
Thermal hazards	none
Delimitation and monitoring of the environmental exposition	Comply with applicable environmental regulations limiting discharge to air, water and soil.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	pasty
Color	green
Odor	characteristic
Odour threshold	not relevant
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	No information available.
Flash point [°C]	not applicable
Flammability (solid, gas) [°C]	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	No information available.
Density [g/cm³]	ca. 0.9 (DIN 51757) (15 °C / 59,0 °F)
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water	immiscible
Solubility other solvents	No information available.
Partition coefficient [n-octanol/water]	No information available.
Kinematic viscosity	NLGI 3
Relative vapour density	No information available.
Evaporation speed	No information available.
Melting point [°C]	No information available.
Auto-ignition temperature [°C]	No information available.
Decomposition temperature [°C]	No information available.
Particle characteristics	No information available.

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Reactions with strong oxidizing agents.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Oxidizing agent
Strong acids.
Strong basic compounds

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

Product
oral, Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
LD50, oral, Rat, 3080 mg/kg bw
Naphthenic acids, zinc salts, CAS: 12001-85-3
LD50, oral, Rat, > 2000 mg/kg
Dilithium tetraborate, CAS: 12007-60-2
LD50, oral, Rat, 300 - 2000 mg/kg bw

Acute dermal toxicity

Product
dermal, Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
LD50, dermal, Rabbit, 20000 mg/kg bw
Dilithium tetraborate, CAS: 12007-60-2
LD50, dermal, Rat, > 2000 mg/kg bw

Acute inhalational toxicity

Product
inhalative, Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
LC50, inhalative, Rat, 2.3 mg/L air, 4h

Serious eye damage/irritation Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
Causes serious eye damage.
Naphthenic acids, zinc salts, CAS: 12001-85-3
irritant
Dilithium tetraborate, CAS: 12007-60-2
Causes serious eye damage.

Skin corrosion/irritation Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
irritant
Naphthenic acids, zinc salts, CAS: 12001-85-3
no adverse effect observed

Dilithium tetraborate, CAS: 12007-60-2
no adverse effect observed

Respiratory or skin sensitisation May produce an allergic reaction.
Calculation method

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
dermal, non-sensitizing
Naphthenic acids, zinc salts, CAS: 12001-85-3
dermal, sensitising
Dilithium tetraborate, CAS: 12007-60-2
non-sensitizing

Specific target organ toxicity — single exposure Based on the available information, the classification criteria are not fulfilled.

Specific target organ toxicity — repeated exposure Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
NOAEL, oral, Rat, 125 mg/kg bw/day

Mutagenicity Based on the available information, the classification criteria are not fulfilled.

Substance
Naphthenic acids, zinc salts, CAS: 12001-85-3
in vitro, negativ

Reproduction toxicity Based on the available information, the classification criteria are not fulfilled.

- Fertility

Substance
Dilithium tetraborate, CAS: 12007-60-2
NOAEL, oral, Rat, 50 mg/kg bw/d (Effect on developmental toxicity)
NOAEL, oral, Rat, 150 mg/kg bw/d (Effect on fertility), no adverse effect observed

- Development

Substance
Dilithium tetraborate, CAS: 12007-60-2
NOAEL, oral, Rat, 50 mg/kg bw/d (Effect on developmental toxicity)
NOAEL, oral, Rat, 150 mg/kg bw/d (Effect on fertility), no adverse effect observed

Carcinogenicity Based on the available information, the classification criteria are not fulfilled.

Aspiration hazard Based on the available information, the classification criteria are not fulfilled.

General remarks

Toxicological data of complete product are not available.
The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists.

11.2 Information on other hazards

Endocrine disrupting properties Contains no ingredients with endocrine-disrupting properties.

Other information none

SECTION 12: Ecological information

12.1 Toxicity

Product
Based on the available information, the classification criteria are not fulfilled.

Substance
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and iso-Pr) esters, zinc salts, CAS: 85940-28-9
EC50, (96h), Algae, 2 - 2.1 mg/L
EC50, (48h), Invertebrates, 5.4 mg/L
NOEC, (21d), Invertebrates, 400 - 800 µg/L
LL50, (96h), Oncorhynchus mykiss, 4.5 mg/l
Naphthenic acids, zinc salts, CAS: 12001-85-3
EC50, (72h), Algae, 4 mg/L
EL50, (48h), Daphnia magna, 35 mg/L
LL50, (96h), fish, 100 mg/L
Dilithium tetraborate, CAS: 12007-60-2
LC50, (96h), fish, 100 mg/L
EC50, (48h), Daphnia magna, 100 mg/L
IC50, (72h), Algae, 100 mg/L
NOEC, (72h), Algae, 32 mg/L

12.2 Persistence and degradability

Behaviour in environment compartments	not determined
Behaviour in sewage plant	not determined
Biological degradability	The product is slightly soluble in water. It can be largely eliminated from the water by abiotic processes, e.g. mechanical separation.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

Ecological data of complete product are not available.
Do not discharge product unmonitored into the environment.
The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

In according to RoHS!
Coordinate disposal with the disposal contractor/authorities if necessary.
Dispose of as hazardous waste.

Waste no. (recommended) 120112* spent waxes and fats

Contaminated packaging

Uncontaminated packaging may be taken for recycling.
Packaging that cannot be cleaned should be disposed of as for product.

Waste no. (recommended) 150110* packaging containing residues of or contaminated by hazardous substances
150102
150104

SECTION 14: Transport information

14.1 UN number or ID number

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.2 UN proper shipping name

Transport by land according to ADR/RID	NO DANGEROUS GOODS
Inland navigation (ADN)	NO DANGEROUS GOODS
Marine transport in accordance with IMDG	NOT CLASSIFIED AS "DANGEROUS GOODS"
Air transport in accordance with IATA	NOT CLASSIFIED AS "DANGEROUS GOODS"

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.4 Packing group

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EEC-REGULATIONS	2008/98/EC 2000/532/EC); 2010/75/EU; 2004/42/EC; (EC) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EEC ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014
TRANSPORT-REGULATIONS	ADR (2023); IMDG-Code (2023, 41. Amdt.); IATA-DGR (2023)
NATIONAL REGULATIONS (GB):	EH40/2005 Workplace exposure limits (Second edition, published December 2011); UK REACH; GB CLP.
- Observe employment restrictions for people	not applicable
- VOC (2010/75/CE)	0 %

15.2 Chemical safety assessment

not applicable

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.
H315 Causes skin irritation.
H361d Suspected of damaging the unborn child.
H302 Harmful if swallowed.
H318 Causes serious eye damage.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.3 Other information

Classification procedure

Modified position

SECTION 11 been added: Contains no ingredients with endocrine-disrupting properties.

SECTION 12 been added: Contains no ingredients with endocrine-disrupting properties.