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

1.1. Product identifier

TF-E

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

Use of the substance/mixture

gear oil

Uses advised against

No information available.

1.3. Details of the supplier of the safety data sheet

Company name:	Vierol AG	
Street:	Karlstrasse 19	
Place:	D-26123 Oldenburg	
Telephone:	+49 (0) 441 – 210 20 – 0	Telefax: +49 (0) 441 – 210 20 –111
e-mail:	info@vierol.de	
Internet:	www.vierol.de	

1.4. Emergency telephone number:

Giftinformationszentrum Nord (Göttingen)
+49 (0)551/19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

This mixture is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

2.2. Label elements

Regulation (EC) No. 1272/2008

Special labelling of certain mixtures

EUH208 Contains Alkylamine trialkyldithiophosphate. May produce an allergic reaction.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Preparation of base oils and additives.

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified			25 - 50 %
	265-157-1	649-467-00-8	01-2119484627-25	
	Asp. Tox. 1; H304			
68037-01-4	Dec-1-ene, homopolymer, hydrogenated			25 - 50 %
	500-183-1		01-2119486452-34	
	Asp. Tox. 1; H304			
	Alkylamine trialkyldithiophosphate			< = 1 %
	Acute Tox. 4, Eye Dam. 1, Skin Sens. 1B, Aquatic Chronic 2; H302 H318 H317 H411			
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol			< = 1,0 %
	293-927-7		01-2119976351-35	
	Aquatic Chronic 3; H412			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
64742-54-7	265-157-1	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified	25 - 50 %
	dermal: LD50 = > 5000 mg/kg; oral: LD50 = > 5000 mg/kg		
68037-01-4	500-183-1	Dec-1-ene, homopolymer, hydrogenated	25 - 50 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg		
		Alkylamine trialkyldithiophosphate	< = 1 %
	oral: ATE = 500 mg/kg		
91648-65-6	293-927-7	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol	< = 1,0 %
	inhalation: LC50 = > 2,75 mg/l (vapours); dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 10000 mg/kg		

Further Information

This mixture contains no substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove affected person from the danger area and lay down.
Do not leave affected person unattended.
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. Call a doctor if you feel unwell.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap.
Take off contaminated clothing and wash it before reuse.
In case of skin irritation, consult a physician.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

After ingestion

Rinse mouth thoroughly with water.
Let water be drunken in little sips (dilution effect).
Do NOT induce vomiting.
In all cases of doubt, or when symptoms persist, seek medical advice.

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

No information available.

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

Use water spray jet to protect personnel and to cool endangered containers.
Co-ordinate fire-fighting measures to the fire surroundings.

- Water spray jet
- Carbon dioxide (CO_2).
- Extinguishing powder

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.
In case of fire may be liberated:

- Carbon monoxide (CO)
- Carbon dioxide (CO_2).
- Pyrolysis products, toxic
- Sulphur dioxide (SO_2)

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus. Use of protective clothing
In case of fire and/or explosion do not breathe fumes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

Keep people at a distance and stay on the windward side.
Special danger of slipping by leaking/spilling product.

For non-emergency personnel

Wear protective gloves/protective clothing and eye/face protection.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.
Do not allow to enter into soil/subsoil.
Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the

recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.
Remove from the water surface (e.g. skimming, sucking).

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid formation of oil dust.
Use personal protection equipment.
Do not put any product-impregnated cleaning rags into your trouser pockets.
Clear spills immediately.

Advice on protection against fire and explosion

No special fire protection measures are necessary.
Take precautionary measures against static discharges.
Keep away from sources of ignition - No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed and in a well-ventilated place.
Keep only in the original container. Store in a cool dry place.
Floors should be impervious, resistant to liquids and easy to clean.

Hints on joint storage

Do not store together with:
- Materials capable of ignition under almost all normal temperature conditions
- Explosives

7.3. Specific end use(s)

gear oil

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified			
Worker DNEL, long-term		inhalation	systemic	2,73 mg/m³
Worker DNEL, long-term		inhalation	local	5,58 mg/m³
Worker DNEL, long-term		dermal	systemic	0,97 mg/kg bw/day
Consumer DNEL, long-term		inhalation	local	1,19 mg/m³
Consumer DNEL, long-term		oral	systemic	0,74 mg/kg bw/day
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol			
Worker DNEL, long-term		inhalation	systemic	4,408 mg/m³
Worker DNEL, long-term		dermal	systemic	6,25 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	1,087 mg/m³
Consumer DNEL, long-term		dermal	systemic	3,125 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,625 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified	
Secondary poisoning		9,33 mg/kg
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol	
Freshwater		0,041 mg/l
Freshwater (intermittent releases)		0,41 mg/l
Marine water		0,004 mg/l
Freshwater sediment		380,62 mg/kg
Marine sediment		38,06 mg/kg
Secondary poisoning		6,67 mg/kg
Micro-organisms in sewage treatment plants (STP)		8000 mg/l
Soil		308,96 mg/kg

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Protective and hygiene measures

Take off contaminated clothing and wash it before reuse.

Wash hands before breaks and after work.

When using do not eat, drink, smoke, sniff.

Eye/face protection

During filling, metering, mixing and sampling must be used:
Wear eye/face protection. DIN EN 166

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits.The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Recommended glove articles: EN ISO 374
Suitable material: NBR (Nitrile rubber)
Thickness of the glove material: 0,4 mm
Breakthrough times and swelling properties of the material must be taken into consideration. Breakthrough time: > 8h
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	brown
Odour:	characteristic
Odour threshold:	not determined

		Test method
pH-Value:	not determined	
Changes in the physical state		
Melting point:	not determined	
Boiling point or initial boiling point and boiling range:	not determined	
Pour point:	-42 °C	ISO 3016
Flash point:	215 °C	DIN ISO 2592
Flammability		
Solid/liquid:	not applicable	
Gas:	not applicable	

Explosive properties

Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined

Oxidizing properties

The product is not: oxidising.

Vapour pressure:	not determined

Density (at 20 °C):	0,844 g/cm³	DIN 51757
Water solubility:	practically insoluble	

Solubility in other solvents

Soluble in hydrocarbons.

Partition coefficient n-octanol/water:	not determined	
Viscosity / dynamic:	not determined	
Viscosity / kinematic: (at 40 °C)	49,1 mm²/s	DIN 51562
Relative vapour density:	not determined	
Evaporation rate:	not determined	

9.2. Other information

Solid content:	not determined	

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

The formation of combustible vapours is possible at temperatures above: Flash point

10.4. Conditions to avoid

Avoid: Thermal decomposition

10.5. Incompatible materials

Materials to avoid:

- Oxidising agent

10.6. Hazardous decomposition products

Hazardous combustion products:

- Carbon monoxide (CO)
- Carbon dioxide (CO2)
- Sulphur dioxide (SO2)
- Pyrolysis products, toxic

SECTION 11: Toxicological information

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

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified					
	oral	LD50 mg/kg	> 5000	Rat	Study report (1982)	OECD Guideline 401
	dermal	LD50 mg/kg	> 5000	Rabbit	Study report (1982)	OECD Guideline 402
68037-01-4	Dec-1-ene, homopolymer, hydrogenated					
	oral	LD50 mg/kg	> 5000	Rat	Study report (1994)	OECD Guideline 401
	dermal	LD50 mg/kg	> 2000	Rat	Study report (1995)	OECD Guideline 402
	Alkylamine trialkyldithiophosphate					
	oral	ATE mg/kg	500			
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol					
	oral	LD50 mg/kg	> 10000	Rat	Study report (1981)	OECD Guideline 401
	dermal	LD50 mg/kg	> 2000	Rabbit	Study report (1981)	OECD Guideline 402
	inhalation (4 h) vapour	LC50 mg/l	> 2,75	Rat	Study report (1981)	OECD Guideline 403

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Contains Alkylamine trialkyldithiophosphate. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.
The product contains less than 3% DMSO extract (method IP346). A classification as a carcinogen with R45 is deleted. (Note L)

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Additional information on tests

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

11.2. Information on other hazards

Endocrine disrupting properties

No information available.

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified						
	Acute fish toxicity	LL50 mg/l	> 100	96 h	Pimephales promelas	Study report (1995)	OECD Guideline 203
68037-01-4	Dec-1-ene, homopolymer, hydrogenated						
	Acute fish toxicity	LL50 mg/l	> 1000	96 h	Oncorhynchus mykiss	Study report (1995)	OECD Guideline 203
	Acute algae toxicity	ErC50 mg/l	> 1000	96 h	Pseudokirchneriella subcapitata	Study report (1995)	OECD Guideline 201
	Acute crustacea toxicity	EL50 mg/l	> 1000	48 h	Daphnia magna	Study report (1995)	OECD Guideline 202
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol						
	Acute fish toxicity	LL50 mg/l	> 1000	96 h	Pimephales promelas	Study report (1985)	OECD Guideline 203
	Acute algae toxicity	ErC50 mg/l	> 100	72 h	Pseudokirchneriella subcapitata	Study report (2012)	OECD Guideline 201
	Acute crustacea toxicity	EL50 mg/l	< 100	48 h	Daphnia magna	Study report (2005)	OECD Guideline 202

12.2. Persistence and degradability

Not readily biodegradable (according to OECD criteria)

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
68037-01-4	Dec-1-ene, homopolymer, hydrogenated	> 6,5

BCF

CAS No	Chemical name	BCF	Species	Source
91648-65-6	1,3,4-Thiadiazolidine-2,5-dithione, reaction products with hydrogen peroxide and tert-nonanethiol	15,7	Fish, not further specified.	Study report (2013)

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.6. Endocrine disrupting properties

No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information

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

EU regulatory information

2004/42/EC (VOC):	49 % (413,56 g/l)
Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Water hazard class (D):	2 - obviously hazardous to water
Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s):
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
VOC: Volatile Organic Compounds
SVHC: Substance of Very High Concern
For abbreviations and acronyms, see table at http://abbrev.esdscom.eu

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH208	Contains Alkylamine trialkyldithiophosphate. May produce an allergic reaction.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)