Klübersynth GEM 4-220 N (H)

Version	Revision Date:	Date of last issue: 14.11.2019	Print Date:
2.5	15.07.2020	Date of first issue: 20.06.2016	15.07.2020

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

1.1 Product identifier

Product name : Klübersynth GEM 4-220 N (H)

Article-No. : 012351

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

Use of the Substance/Mixture : Lubricating oil

Recommended restrictions on use : Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

Company : Klüber Lubrication München
Geisenhausenerstr. 7
81379 München
Deutschland
Tel: +49 (0) 89 7876 0
Fax: +49 (0) 89 7876 333
info@klueber.com

E-mail address of person responsible for the SDS : mcm@klueber.com
Material Compliance Management

National contact : Klüber Lubrication AG (Schweiz)
Thurgauerstrasse 39
8050 Zürich
Tél +41 44 308 69 69 (08.00 - 17.00 h)
Fax +41 44 308 69 44

1.4 Emergency telephone number

Emergency telephone number : Tox Info Suisse (Phone +41 145, 24 h a day)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Additional Labelling

EUH210	Safety data sheet available on request.
EUH208	Contains amines, C12-14-tert-alkyl. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Synthetic hydrocarbon oil
ester oil

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration limits M-Factor Notes	Concentration (% w/w)
amines, C12-14-tert-alkyl	701-175-2 01-2119456798-18-XXXX	Acute Tox.4; H302 Acute Tox.2; H330 Acute Tox.3; H311 Skin Corr.1B; H314 Eye Dam.1; H318 Skin Sens.1A; H317 STOT SE3; H335 Aquatic Acute1; H400 Aquatic Chronic1; H410	M-Factor: 1/1	>= 0,025 - < 0,1
Substances with a workplace exposure limit :				
Dec-1-ene, homopolymer, hydrogenated	68037-01-4 500-183-1 01-2119486452-34-XXXX	Not classified		>= 70 - < 90

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled	:	Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration.
In case of skin contact	:	Remove contaminated clothing. If irritation develops, get medical attention. In case of contact, immediately flush skin with plenty of water.
In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. If eye irritation persists, consult a specialist.
If swallowed	:	Move the victim to fresh air. Do NOT induce vomiting. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.
Risks	:	None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Fire may cause evolution of: Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Exposure to decomposition products may be a hazard to health.

Further information : Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas.
Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Try to prevent the material from entering drains or water courses.
Prevent further leakage or spillage if safe to do so.
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Wash hands and face before breaks and immediately after handling the product.

Hygiene measures : Wash face, hands and any exposed skin thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep container closed when not in use. Keep in a dry, cool and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in accordance with the particular national regulations. Keep in properly labelled containers.

7.3 Specific end use(s)

Specific use(s) : Specific instructions for handling, not required.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Dec-1-ene, homopolymer, hydrogenated	68037-01-4	TWA (inhalable dust)	5 mg/m3	CH SUVA (2019-01-22)
Further information	Harm to the unborn child is not to be expected when the OEL-value is respected			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
diisotridecyl adipate	Workers	Inhalation	Long-term systemic effects	24 mg/m3
	Workers	Skin contact	Long-term systemic effects	3,4 mg/kg bw/day
amines, C12-14-tert-alkyl	Workers	Inhalation	Long-term systemic effects	12,5 mg/m3
	Workers	Inhalation	Long-term local effects	12,1 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
diisotridecyl adipate	Fresh water	0,00004 mg/l
	Intermittent use/release	1 mg/l
	Marine water	0,000004 mg/l
	Intermittent use/release	1 mg/l
	Sewage treatment plant	48 mg/l
	Fresh water sediment	40 mg/kg dry weight (d.w.)
	Marine sediment	40 mg/kg dry weight (d.w.)
	Soil	1 mg/kg dry weight (d.w.)
amines, C12-14-tert-alkyl	Fresh water	0,001 mg/l
	Marine water	0,0001 mg/l
	Intermittent use/release	0,004 mg/l
	Sewage treatment plant	0,635 mg/l
	Fresh water sediment	2,14 mg/l
	Marine sediment	0,214 mg/l
	Soil	0,428 mg/l
	Oral	4,71 mg/l

8.2 Exposure controls

Engineering measures

none

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection

Material	:	Nitrile rubber
Break through time	:	> 10 min
Protective index	:	Class 1
Remarks	:	Wear protective gloves. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.

Respiratory protection : Not required; except in case of aerosol formation.

Filter type : Filter type A-P

Protective measures : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	yellow
Odour	:	characteristic
Odour Threshold	:	No data available
pH	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	>= 200 °C Method: open cup

Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	< 0,001 hPa (20 °C)
Relative vapour density	:	No data available
Density	:	0,86 g/cm3 (20 °C)
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	220 mm2/s (40 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	No data available

9.2 Other information

Sublimation point	:	No data available
Self-ignition	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No conditions to be specially mentioned.

10.5 Incompatible materials

Materials to avoid : No materials to be especially mentioned.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Acute oral toxicity : Remarks: This information is not available.

Acute inhalation toxicity : Remarks: This information is not available.

Acute dermal toxicity : Remarks: This information is not available.

Components:

amines, C12-14-tert-alkyl:

Acute oral toxicity : LD50 (Rat): 612 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 1,19 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): 251 mg/kg
Method: OECD Test Guideline 402

Dec-1-ene, homopolymer, hydrogenated:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): 5,2 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute

inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Remarks : This information is not available.

Components:

amines, C12-14-tert-alkyl:

Assessment : Causes burns.
Result : Causes burns.

Dec-1-ene, homopolymer, hydrogenated:

Species : Rabbit
Assessment : No skin irritation
Method : OECD Test Guideline 404
Result : No skin irritation
GLP : yes

Serious eye damage/eye irritation

Product:

Remarks : This information is not available.

Components:

amines, C12-14-tert-alkyl:

Species : Rabbit
Assessment : Risk of serious damage to eyes.
Method : OECD Test Guideline 405
Result : Irreversible effects on the eye

Dec-1-ene, homopolymer, hydrogenated:

Species : Rabbit
Assessment : No eye irritation
Method : OECD Test Guideline 405
Result : No eye irritation
GLP : yes

Respiratory or skin sensitisation

Product:

Remarks : This information is not available.

Components:

amines, C12-14-tert-alkyl:

Species	:	Guinea pig
Assessment	:	The product is a skin sensitiser, sub-category 1A.
Method	:	OECD Test Guideline 406
Result	:	Probability or evidence of high skin sensitisation rate in humans

Dec-1-ene, homopolymer, hydrogenated:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

Germ cell mutagenicity

Product:

Genotoxicity in vitro	:	Remarks: No data available
Genotoxicity in vivo	:	Remarks: No data available

Components:

amines, C12-14-tert-alkyl:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Method: OECD Test Guideline 476 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: Chromosome aberration test in vitro Species: Mouse Application Route: Oral Method: OECD Test Guideline 474 Result: negative
Germ cell mutagenicity-Assessment	:	Animal testing did not show any mutagenic effects.

Dec-1-ene, homopolymer, hydrogenated:

Germ cell mutagenicity-Assessment	:	Animal testing did not show any mutagenic effects.

Carcinogenicity

Product:

Remarks : No data available

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

amines, C12-14-tert-alkyl:

Effects on foetal development : Species: Rat
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic development were detected.

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.
Animal testing did not show any effects on foetal development.

Dec-1-ene, homopolymer, hydrogenated:

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

Components:

amines, C12-14-tert-alkyl:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Components:

amines, C12-14-tert-alkyl:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Product:

Remarks : This information is not available.

Components:

amines, C12-14-tert-alkyl:

Species	:	Rat
NOAEL	:	19 mg/kg
Application Route	:	Inhalation
Test atmosphere	:	vapour
Method	:	OECD Test Guideline 412

Species	:	Rat
NOAEL	:	20 mg/kg
Application Route	:	Skin contact
Method	:	OECD Test Guideline 410

Aspiration toxicity

Product:

This information is not available.

Components:

amines, C12-14-tert-alkyl:

No aspiration toxicity classification

Dec-1-ene, homopolymer, hydrogenated:

No aspiration toxicity classification

Further information

Product:

Remarks	:	Information given is based on data on the components and the toxicology of similar products.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available

Components:

Amines, C12-14-tert-alkyl:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1,3 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2,5 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 0,44 mg/l Exposure time: 72 h Test Type: Growth inhibition Method: OECD Test Guideline 201
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	NOEC: 0,078 mg/l Exposure time: 96 d Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 210
M-Factor (Chronic aquatic toxicity)	:	1

Dec-1-ene, homopolymer, hydrogenated:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 1.000 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 1.000 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EL50 (Selenastrum capricornutum (green algae)): > 1.000 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR: 125 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 211 GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical removability : Remarks: No data available

Components:

Amines, C12-14-tert-alkyl:

Biodegradability : Inoculum: activated sludge
Concentration: 4 mg/l
Result: Not rapidly biodegradable
Biodegradation: 21,8 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Dec-1-ene, homopolymer, hydrogenated:

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).
This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Components:

Amines, C12-14-tert-alkyl:

Partition coefficient: n-octanol/water : log Pow: 2,9 (20 °C)

Dec-1-ene, homopolymer, hydrogenated:

Partition coefficient: n-octanol/water : log Pow: > 6,5 (20 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

12.4 Mobility in soil

Product:

Mobility : Remarks: No data available

Distribution among environmental compartments : Remarks: No data available

12.5 Results of PBT and vPvB assessment

Components:

Dec-1-ene, homopolymer, hydrogenated:

Assessment : Non-classified PBT substance. Non-classified vPvB substance.

12.6 Other adverse effects

Product:

Additional ecological information : No information on ecology is available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Packaging that is not properly emptied must be disposed of as the unused product.
Dispose of waste product or used containers according to local regulations.

The following Waste Codes are only suggestions:

Waste Code : unused product
13 02 06*, synthetic engine, gear and lubricating oils

uncleaned packagings
15 01 10, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number

ADR : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

ADR : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADR	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADR	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA (Cargo)	:	Not regulated as a dangerous good
IATA (Passenger)	:	Not regulated as a dangerous good

14.5 Environmental hazards

ADR	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA (Passenger)	:	Not regulated as a dangerous good
IATA (Cargo)	:	Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

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

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

PIC Ordinance, ChemPICO (814.82)	:	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - Restrictions on the manufacture, placing on	:	Not applicable

the market and use of certain dangerous substances, preparations and articles (Annex XVII)

Ordinance on Protection against Major Accidents
Threshold quantity according to Major Accidents Ordinance (MAO 814.012) : Not applicable

Volatile organic compounds : Law on the incentive tax for volatile organic compounds (VOCV)
Volatile organic compounds (VOC) content: 0,14 %
no VOC duties

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H311	:	Toxic in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H330	:	Fatal if inhaled.
H335	:	May cause respiratory irritation.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

CH SUVA	:	Switzerland. Limit values at the work place
CH SUVA / TWA	:	Time Weighted Average

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; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect

Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative