

RHEOBYK-411

Product code: 00000000000129986

Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

SECTION 1: Identification of the hazardous chemical and of the supplier**Product identifier**

Product name : RHEOBYK-411
Recommended use : Rheology Additive

Manufacturer or supplier's details

Company : BYK-Chemie GmbH
Address : Abelstrasse 45
46483 Wesel
Telephone : +49 281 670-23532
Telefax : +49 281 670-23533
E-mail address : GHS.BYK@altana.com
Emergency telephone number : +60 3 6207 4347 (Malay and English)
+65 3158 1074 (All languages)

SECTION 2: Hazards identification**Classification of the hazardous chemical**

Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2
Reproductive toxicity : Category 1B
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360D May damage the unborn child.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.

RHEOBYK-411

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P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/
attention.

Other hazards which do not result in classification

None known.

SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture : Mixture
Chemical nature : Solution of a modified urea

Components

Chemical name	CAS-No.	Concentration (% w/w)
N-methyl-2-pyrrolidone	872-50-4	≥ 50 - ≤ 100
lithium chloride	7447-41-8	≥ 1 - < 3
Pyrrolidinone, dimethyl-	60544-40-3	≥ 0.3 - < 0.5

SECTION 4: First aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed : No information available.
No information available.

Notes to physician : No information available.

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SECTION 5: Firefighting measures**Extinguishing media**Suitable extinguishing media : Carbon dioxide (CO₂)Foam
Carbon dioxide (CO₂)
Dry chemical

Water mist

Unsuitable extinguishing media : High volume water jet

Physicochemical hazards arising from the chemicalHazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
Halogenated compounds
Metal oxides
Hydrogen chloride**Special protective equipment and precautions for fire-fighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Specific extinguishing methods : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.**SECTION 6: Accidental release measures**

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.**SECTION 7: Handling and storage****Handling****Precautions for safe handling**

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

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Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Storage

Conditions for safe storage, including any incompatibilities

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8: Exposure controls and personal protection

Control parameters

Contains no substances with occupational exposure limit values.

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
N-methyl-2-pyrrolidone	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after exposure ceases)	100 mg/l	ACGIH BEI

Individual protection measures, such as personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hand protection
Material : butyl-rubber
Break through time : 120.00 min

RHEOBYK-411

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Remarks	: Wear suitable gloves.
Respiratory protection	: In the case of vapour formation use a respirator with an approved filter.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Appearance	: liquid
Colour	: light yellow
Odour	: not significant
Odour Threshold	: No data available
pH	: 5 (20 °C) Concentration: 1 % Method: Universal pH-value indicator
Melting point/range	: No data available
Initial boiling point	: 203.00 °C
Flash point	: 91.00 °C Method: 49 (Pensky-Martens)
Evaporation rate	: No data available
Flammability (liquids)	: Sustains combustion
Upper explosion limit / Upper flammability limit	: 9.50 %(V)
Lower explosion limit / Lower flammability limit	: 1.30 %(V)
Vapour pressure	: < 0.500000 hPa (20.00 °C) Method: calculated
Relative vapour density	: No data available
Relative density	: No data available
Density	: 1.0500 g/cm ³ (20.00 °C) Method: 4 (20°C oscillating U-tube)

RHEOBYK-411

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Version 5.0 SDS_APJ_MY

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Bulk density	:	Not applicable
Solubility(ies)	:	
Water solubility	:	immiscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	245.00 °C Method: calculated
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available
Incompatible materials	:	Acids Strong oxidizing agents Alkalis
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Information on likely routes of exposure : None known.

Acute toxicity**Product:**

Acute oral toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method
Acute dermal toxicity	:	Remarks: No data available

Components:**N-methyl-2-pyrrolidone:**

RHEOBYK-411

Product code: 000000000000129986

Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

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Acute oral toxicity : LD50 (Rat): 4,150 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 402
GLP: No information available.

lithium chloride:

Acute oral toxicity : LD50 (Rat): 526 mg/kg
GLP: No information available.

Acute inhalation toxicity : LC50 (Rat): > 5.57 mg/l
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Skin corrosion/irritation**Product:**

Remarks : May irritate skin.
May cause skin irritation in susceptible persons.

Components:**N-methyl-2-pyrrolidone:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : slight irritation
GLP : yes

Serious eye damage/eye irritation**Product:**

Remarks : Causes serious eye irritation.

Components:**N-methyl-2-pyrrolidone:**

Species : Rabbit
Result : Severe eye irritation
Method : OECD Test Guideline 405
GLP : no

RHEOBYK-411

Product code: 000000000000129986

Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

lithium chloride:

Species : Rabbit
Result : Severe eye irritation
Method : OECD Test Guideline 405
GLP : yes

Respiratory or skin sensitisation**Product:**

Remarks : No data available

Components:**N-methyl-2-pyrrolidone:**

Test Type : Mouse Local Lymph Node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : Not a skin sensitizer.
GLP : yes

lithium chloride:

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
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

Carcinogenicity**Product:**

Remarks : No data available

Reproductive toxicity**Product:**

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Reproductive toxicity - Assessment : May damage the unborn child.

RHEOBYK-411

Product code: 000000000000129986

Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

STOT - single exposure**Product:**

Remarks : No data available

STOT - repeated exposure**Product:**

Remarks : No data available

Aspiration toxicity**Product:**

No data available

Further information**Product:**

Remarks : No data available

SECTION 12: Ecological information**Ecotoxicity****Product:**Toxicity to fish :
Remarks: No data availableToxicity to algae/aquatic plants :
Remarks: No data available**Components:****N-methyl-2-pyrrolidone:**Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l
Exposure time: 96 h
Test Type: static test
GLP: noToxicity to algae/aquatic plants : (Scenedesmus subspicatus): > 500 mg/l
Exposure time: 72 h
GLP: noToxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 12.5 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes**lithium chloride:**

RHEOBYK-411

Product code: 000000000000129986

Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 158 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 249 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes
- NOEC (Daphnia magna (Water flea)): 63.4 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes
- Toxicity to algae/aquatic plants : (Desmodesmus subspicatus (green algae)): > 400 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

Persistence and degradability**Product:**

Biodegradability : Remarks: No data available

Components:**N-methyl-2-pyrrolidone:**Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301C
GLP: No information available.**Bioaccumulative potential****Product:**

Bioaccumulation : Remarks: No data available

Components:**N-methyl-2-pyrrolidone:**Partition coefficient: n-octanol/water : log Pow: -0.46 (25 °C)
Method: OECD Test Guideline 107
GLP: no**Mobility in soil**

No data available

Other adverse effects**Product:**

Additional ecological information : No data available

RHEOBYK-411

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SECTION 13: Disposal information**Disposal methods**

- Waste from residues : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information**International Regulations****UNRTDG**

- UN number : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable

IATA-DGR

- UN/ID No. : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
Packing instruction (cargo aircraft) : Not applicable
Packing instruction (passenger aircraft) : Not applicable

IMDG-Code

- UN number : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
EmS Code : Not applicable
Marine pollutant : Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

Not applicable

RHEOBYK-411

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Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

SECTION 15: Regulatory information**Safety, health, and environmental regulations specific for the hazardous chemical**

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

SECTION 16: Other information

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)

AIIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECl - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is

RHEOBYK-411

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Version 5.0 SDS_APJ_MY

Revision Date 07.12.2022

Print Date 09.08.2023

not to be considered 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 materials or in any process, unless specified in the text.

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