Safety Data Sheet

according to Regulations REACh 1907/2006/EC

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

1.1 Product identifier

REF 814300
Product name TLC Micro Set F 2

REACH Registration number(s): see SECTION 3.1/3.2 or
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1 x 100 mL Molydatophosphoric acid spray reagent UFI: 0T2V-S370-X204-6CX3
2 x 50 mL Acetone
1 x 100 mL Cyclohexane
1 x 25 mL Butan-2-on
1 x 8 ml TLC reference solution cholesterine F10

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

Relevant identified uses
Product for analytical use.
Exposure Scenario Classification according REACh, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
The exposure scenario is integrated into sections 1-16.
Uses advised against
not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:
MACHEREY-NAGEL GmbH & Co. KG
Valencienner Str. 11, 52355 Düren, Germany
Phone: +49 2421 969 0 E-mail: sds@mn-net.com (msds@mn-net.com)

1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.
DE: Gemeinsames Giftinformationszentrum (GGIZ)
99089 Erfurt tel. +49 361 730 730, **<https://www.ggiz-erfurt.de>**

You find our current versions of SDS in Internet: **<http://www.mn-net.com/SDS>**

SECTION 2: Hazard identification

2.0 Classification of the complete product according to Regulation (EC) 1272/2008



GHS02 GHS05 GHS07 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H304	Asp. Tox. 1
H315	Skin Irrit. 2
H318	Eye Dam. 1
H336	STOT SE 3
H410	Aquatic Chronic 1
EUH066	Skin Irrit. 2

2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

100 mL Cyclohexane



GHS02 GHS07 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H304	Asp. Tox. 1
H315	Skin Irrit. 2
H336	STOT SE 3
H410	Aquatic Chronic 1

100 mL Molydatophosphoric acid spray reagent



GHS02 GHS05 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H315	Skin Irrit. 2
H318	Eye Dam. 1

8 ml TLC reference solution cholesterine F10



GHS02 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH066	Skin Irrit. 2
H225	Flam. Liq. 2
H319	Eye Irrit. 2
H336	STOT SE 3

50 mL Acetone

Do not need labelling as hazardous

Signal word -

No hazard class

25 mL Butan-2-on



GHS02 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH066	Skin Irrit. 2
H225	Flam. Liq. 2
H319	Eye Irrit. 2
H336	STOT SE 3

List of H phrases: see section 16.2

2.2 Label elements according regulation (EC) 1272/2008

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identificator(s) (EU 1272/2008 Annex I - 1.5.1.2). Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2).

100 mL Cyclohexane



GHS02 GHS07 GHS08 GHS09

Signal word: DANGER
H304
May be fatal if swallowed and enters airways.
P301+310, P331
IF SWALLOWED: Immediately call a POISON CENTER/ doctor.Do NOT induce vomiting.

100 mL Molydatophosphoric acid spray reagent



GHS02 GHS05

Signal word: DANGER
H318
Causes serious eye damage.
P280sh, P305+351+338, P310
Wear protective gloves/eye protection.IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.Immediately call a POISON CENTER/doctor.

8 ml TLC reference solution cholesterine F10



GHS02 GHS07

Signal word: DANGER

50 mL Acetone

Do not need labelling as hazardous
Signal word: -

25 mL Butan-2-on



GHS02 GHS07

Signal word: DANGER

Label elements of the complete product



GHS02 GHS05 GHS08 GHS09

Signal word: DANGER
H304, H318
May be fatal if swallowed and enters airways.Causes serious eye damage.
P280sh, P301+310, P305+351+338, P331
Wear protective gloves/eye protection.IF SWALLOWED: Immediately call a POISON CENTER/ doctor.IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.Do NOT induce vomiting.

2.3 Other hazards

Possible hazards from physicochemical properties
Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. In the case of pH values are less than 5 or higher than 9 then it is irritant. Flammable properties.

Information pertaining to particular risks to human and possible symptoms
Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.
May be fatal if swallowed and enters airways.

Information pertaining to particular risks to the environment
PBT: not applicable
vPvB: not applicable

Possible endocrine disrupting effects
no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

100 mL Cyclohexane

Substance name:	*cyclohexane*		
CAS No.:	110-82-7		
Substance rating:	H225, Flam. Liq. 2, H304, Asp. Tox. 1, H315, Skin Irrit. 2, H336, not defined, H410, Aquatic Chronic 1		
Formula:	C_6H_{12}		
REACH Reg. No.:	01-2119463273-41-xxxx		
EC No.:	203-806-2	Indice No.:	601-017-00-1
Concentration:	90 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H304, Asp. Tox. 1, H315, Skin Irrit. 2, H336, STOT SE 3, H410, Aquatic Chronic 1		

8 ml TLC reference solution cholesterine F10

Substance name:	*acetone*		
CAS No.:	67-64-1		
Substance rating:	H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2		
Formula:	C_3H_6O; $(CH_3)_2$-CO		
Pseudonym (de):	2-Propanon		
REACH Reg. No.:	01-2119471330-49-xxxx		
EC No.:	200-662-2	Indice No.:	606-001-00-8
Concentration:	80 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2		

25 mL Butan-2-on

Substance name:	*ethyl methyl ketone*		
CAS No.:	78-93-3		
Substance rating:	H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, not defined, EUH066, Skin Irrit. 2		
Formula:	C_4H_8O		
Pseudonym (de):	MEK, 2-Butanon, Methylethylketon		
REACH Reg. No.:	01-2119457290-43-xxxx		
EC No.:	201-159-0	Indice No.:	606-002-00-3
Concentration:	80 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2		

100 mL Molydatophosphoric acid spray reagent

Substance name:	*ethanol*		
CAS No.:	64-17-5 (denatured with 1% 2-butanone / 1% 2-propanol)		
Substance rating:	H225, Flam. Liq. 2		
Formula:	C_2H_6O; C_2H_5OH		
Pseudonym (de):	Äthylalkohol, vergällter Spiritus		
REACH Reg. No.:	01-2119457610-43-xxxx		
EC No.:	200-578-6	Indice No.:	603-002-00-5
Concentration:	90 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2		

Substance name:	*molybdatophosphoric acid*
CAS No.:	51429-74-4
Substance rating:	H272, Ox. Liq. 2, H314, Skin Corr. 1B
Formula:	$H_3[P(Mo_3O_{10})_4]\bullet x\,H_2O$
Pseudonym (de):	Phosphormolybdänsäure
EC No.:	234-713-5
Concentration:	3 - <5 %
acc. CLP (GHS):	H315, Skin Irrit. 2, H318, Eye Dam. 1

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.List of H and P phrases: see section 16.2.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor.

4.1.1 After SKIN Contact

Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---

4.1.4 After ORAL Intake

After oral intake lots of water should be drunk after it has been ingested.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must to be carried out by an eye specialist. ---

SECTION 5: Firefighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

5.1.2 Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

DANGER: Highly flammable (GHS regulation). Forms explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible.

5.3 Advice for firefighters

No, for listed product.Product package burns like paper or plastic.

5.4 Additional information

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

6.2 Environmental precautions

PBT: not applicable
vPvB: not applicable

6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals.
Clean any contaminated equipment and floors with plenty of water.
Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging . Storage class (German chemical industry): see chapter 12.1
Storage class (VCI): 3
Water hazard class (DE): 2

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage. Use inbreakable container for transport of glass bottles.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

100 mL Cyclohexane

Chemical: *cyclohexane* CAS No.: 110-82-7

DNEL: 700 $_{inh}$ mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 0.207 mg/L
PNEC = Predicted No Effected Concentration

EU value: 200 ppm / 700 mg/m³

TRGS 900 (DE): 200 ppm / 700 mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 4 (II)
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 200 ppm / 700 mg/m³

SUVA(CH) BAT value: U/b,c 150 $_{Kreatinin}$ mg/g

TRGS 903 (DE): U/b,U/c 150 $_{Kreatinin}$ mg/g
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed

8 ml TLC reference solution cholesterine F10

Chemical: *acetone* CAS No.: 67-64-1

DNEL: [inh] (1210) mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 10.6 mg/L
PNEC = Predicted No Effected Concentration

EU value: 500 ppm / 1200 mg/m³

TRGS 900 (DE): 500 mL/m³ / 1200 mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 2 (I), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm/ 1200 mg/m³

SUVA(CH) BAT value: [U/b] 80 mg/L

TRGS 903 (DE): [U/b] 80 mg/L
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [TWA] 250 ppm / [STEL] 590 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 1000 ppm / [STEL] 2400 mg/m³

25 mL Butan-2-on

Chemical: *ethyl methyl ketone* CAS No.: 78-93-3

DNEL: 600 $_{inh}$ mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 55.8 mg/L
PNEC = Predicted No Effected Concentration

EU value: 200 ppm / 600 mg/m³

TRGS 900 (DE): 200 mL/m³ / 600 mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 1 (I), H, Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

TRGS 903 (DE): U/b 2 mg/L
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: TWA 200 ppm / 590 mg/m ^{3} ; ST 300 ppm (885 mg/m³

NIOSH STEL: 300 ppm / 885 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 200 ppm / 590 mg/m³

100 mL Molydatophosphoric acid spray reagent

Chemical: *ethanol* CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 0.96 mg/L
PNEC = Predicted No Effected Concentration

TRGS 900 (DE): 200 mL/m³ / 380 mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 4 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm / 960 mg/m³
NIOSH: [TWA] 1000 ppm / 1900 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 1000 ppm / 1900 mg/m³

Chemical: *molybdatophosphoric acid* CAS No.: 51429-74-4
TRGS 900 (DE): [Mo] 5 E mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 4
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [Mo] 5 e mg/m³

8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

8.2.1 Respiratory protection
No additional recommendations.

8.2.2 Skin protection / Hand protection
Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC (f.ex. from Ansell or KCL). Use for short times chemical resistant latex or nitril gloves with code EN 374-3 level 1.

8.2.3 Eye / Face Protection
Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection or face protection.

8.2.4 Skin protection
Recommended to avoid contamination with these hazards.

8.2.5 Personal hygiene
Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

8.2.6 Thermal hazards
no data available

8.3 Limitation and monitoring of environmental exposure

Do not release product into environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

100 mL Cyclohexane

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	organic
d) Melting point:	6.5 °C
e) Boiling point:	81 °C
f) Flammability:	no data available
g) Explosive limits (lower / upper):	1-9.3 Vol%
h) Flash point:	(-26) -18 °C
i) Flashing temperature:	260 °C
j) Decomposition temperature:	no data available
k) pH value:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	0 %
n) Dispersion coefficient $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	104 hPa
p) Specific gravity:	0,78 g/cm³
q) Relative vapour density $_{(air=1)}$:	2.91
r) Particle size:	no data available

8 ml TLC reference solution cholesterine F10

a) State of aggregation:	liquid
b) Colour:	
c) Odor:	
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density $_{(air=1)}$:	no data available
r) Particle size:	no data available

25 mL Butan-2-on

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	organic
d) Melting point:	-86 °C
e) Boiling point:	80 °C
f) Flammability:	no data available
g) Explosive limits (lower / upper):	1.5... 12.6 Vol%
h) Flash point:	-10 °C
i) Flashing temperature:	475 °C
j) Decomposition temperature:	no data available
k) pH value:	6-8
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-30 %
n) Dispersion coefficient $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	105 hPa
p) Specific gravity:	0,805 g/cm³
q) Relative vapour density $_{(air=1)}$:	2,48
r) Particle size:	no data available

100 mL Molydatophosphoric acid spray reagent

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	alcoholic
d) Melting point:	-114 °C
e) Boiling point:	78 °C
f) Flammability:	no data available
g) Explosive limits (lower / upper):	3.2-15 Vol%
h) Flash point:	12 °C
i) Flashing temperature:	425 °C
j) Decomposition temperature:	no data available
k) pH value:	7
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	59 hPa
p) Specific gravity:	0,79-0,86 g/cm³
q) Relative vapour density $_{(air=1)}$:	1,59
r) Particle size:	no data available

9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

Properties relevant to substance groups

Substances are highly volatile and form flammable gas-air mixtures.

SECTION 10: Stability and reactivity

10.1 Reactivity

no further data available.

10.2 Chemical stability

no known instability.

10.3 Possibility of hazardous reactions

No further data available.

10.4 Conditions to avoid

No more required.

10.5 Incompatible materials

no additional data available

10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

SECTION 11: Toxicological information

11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

100 mL Cyclohexane

Chemical:	*cyclohexane*	CAS No.: 110-82-7
TSCA Inventory:	listed	California Proposition 65 List: not listed
Symptoms:	skin irritation; mild eye irritation	
Australia NICNAS:	not listed	Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR:	PAC Yes, Japan PDSCL: not listed	
Japan ISHL:	listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-18562	
LD50 $_{orl\ rat}$:	12700 mg/kg	
LC50 $_{ihl\ rat}$:	14 mg/L/4H	

8 ml TLC reference solution cholesterine F10

Chemical:	*acetone*	CAS No.: 67-64-1
TSCA Inventory:	listed	California Proposition 65 List: not listed
ACGIH:	750 ppm	
Exposure Routes:	inhalation, ingestion, skin and/or eye contact	
Target Organs:	Eyes, skin, respiratory system, central nervous system	
Symptoms:	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	
Australia NICNAS:	not listed	Canada CEPA 1999: DSL yes
Japan CSCL/PRTR:	[PAC] Yes, Japan PDSCL: not listed	
Japan ISHL:	listed ≥1,0%/≥0,1%, Article 57-1+2 (Labelling&SDS required)	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-29367	
LD50 $_{orl\ rat}$:	5800 mg/kg	
LC50 $_{ihl\ rat}$:	50,1 mg/L/8H	

25 mL Butan-2-on

Chemical:	*ethyl methyl ketone*	CAS No.: 78-93-3
TSCA Inventory:	listed	
Exposure Routes:	inhalation, ingestion, skin and/or eye contact	
Target Organs:	Eyes, skin, respiratory system, central nervous system	
Symptoms:	irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	
Japan ISHL:	listed ≥1,0%/≥1,0%,	
Korea Exist.Chem.Inventory:	KE-24094, Toxic 97-1-81	
LD50 $_{orl\ rat}$:	> 2193 mg/kg	

100 mL Molydatophosphoric acid spray reagent

Chemical: *ethanol* CAS No.: 64-17-5
TSCA Inventory: listed California Proposition 65 List: not listed
ACGIH: 1000 ppm
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system
Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-13217
LD50 orl rat : 6200 mg/kg
LC_Low ihl gpg : 21,900 mg/L
LC_Low orl hmn : 1400 mg/kg
LC50 ihl mus : 123,4 mg/L/4H
LC50 ihl rat : 115,9-133,8 mg/L/4H
LD50 orl mus : 3450 mg/kg

TRGS 905 (DE): K5, M5, R F C

Chemical: *molybdatophosphoric acid* CAS No.: 51429-74-4
TSCA Inventory: listed (CAS 11104-88-4)
Target Organs: affect the eye or visual capacity
Symptoms: conjunctivitis; corneal damage
Japan ISHL: listed ≥1,0%/≥0,1%,
Korea Exist.Chem.Inventory: not listed

11.2 Other hazards

Possible endocrine disrupting effects
no data available

Other information
no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

100 mL Cyclohexane

Chemical: *cyclohexane* CAS No.: 110-82-7
Very toxic to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.
Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).
PNEC (fresh water) : 0.207 mg/L
PNEC = Predicted No Effected Concentration
LC50 fish/96h : 34 mg/L
EC50 daphnia/48h : 3.8 mg/L
Water hazard class (DE): 2 WGK No.: 0063
Storage class (VCI): 3

8 ml TLC reference solution cholesterine F10

Chemical: *acetone* CAS No.: 67-64-1
PNEC (fresh water) : 10.6 mg/L
PNEC = Predicted No Effected Concentration
LC50 daphnia magna/48h : [48h] 8.8 g/L
LC50 fish/96h : [4d] 5540 mg/L
EC50 daphnia/48h : 2212 mg/L
IC50 scenedesmus quadricauda/72h : IC5: 7500 mg/L
EC10 pseudomonas putita/16h : [30 min] 61,15 g/L
Water hazard class (DE): 1 WGK No.: 0006
Dispersion coefficient (o/w) : -0,24
Storage class (VCI): 3

25 mL Butan-2-on

Chemical: *ethyl methyl ketone* CAS No.: 78-93-3
PNEC (fresh water) : 55.8 mg/L
PNEC = Predicted No Effected Concentration
LC50 pimephales promelas/96h : 2993 mg/L
EC50 daphnia/48h : 308 mg/L
EC50 pseudokirchneriella subcapitata/72h : EC50/96h: 2029 mg/L
Water hazard class (DE): 1
Storage class (VCI): 3

100 mL Molydatophosphoric acid spray reagent

Chemical: *ethanol* CAS No.: 64-17-5
PNEC (fresh water) : 0.96 mg/L
PNEC = Predicted No Effected Concentration
LC50 daphnia magna/48h : >100 mg/L
LC50 pimephales promelas/96h : 13400 - 15100 mg/L
LC50 leuciscus idus/96h : [48h] 8140 mg/L
LC50 fish/96h : 13 g/L
EC50 daphnia/48h : 9.3-14.2 g/L
IC50 scenedesmus quadricauda/72h : [7d] 5000 mg/L
EC10 pseudomonas putita/16h : [EC5] 6500 mg/L
Water hazard class (DE): 1 WGK No.: 0096
Dispersion coefficient (o/w) : -0,31
Storage class (VCI): 3

Chemical: *molybdatophosphoric acid* CAS No.: 51429-74-4
Water hazard class (DE): 2
Storage class (VCI): 8 B

12.2 Persistence and degradability

not necessary

12.3 Bioaccumulative potential

not necessary

12.4 Mobility in soil

not necessary

12.5 Results of PBT and vPvB assessment

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

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

no additional data available

SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06).

13.1 Waste treatment methods

Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

SECTION 14: Transport information

14.1. UN number: 3316
14.2. UN proper shipping name: Chemical Kit
14.3. Class: 9 14.4. Packing group: II
Road transport ADR
Classification code: M11 Tunnel restriction code: E
Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation
Air transport ICAO
PAX: 960 max. weight PAX: 10 KG
CAO: 960 max. weight CAO: 10 KG

Maritime transport IMDG
EmS: F-A, S-P Storage category: A

Or use **Alternative declaration for transportation:**

14.1 UN number: 1993 14.2 UN proper shipping name: Flammable liquid, n.o.s. (acetone, ethanol mixture)
14.3 Class: 3 14.4 Packing group: II
Road transport ADR
Classification code: F1
Limited Quantity: 1 L Tunnel restriction code: E
Excepted Quantity: E 2 Special instructions: 640C
Air transport ICAO
Limited Quantity: LQ 4
Excepted Quantity: E 2
PAX: 353 max. weight PAX: 5 L
CAO: 364 max. weight CAO: 60 L
Maritime transport IMDG
EmS: F-E, S-E Storage category: B

14.5 Environmental hazards
none, contains only small quantities of hazardous substances, contains only small amounts of these substances

14.6 Special precautions for user
not necessary

14.7 Carriage in bulk by sea in accordance with IMO instruments
Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020
Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017
TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017
TRGS 220, National aspects when preparing safety data sheets, Jan 2017
TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017
BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
TRGS 500, Protective measures, Mai 2008
TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015
Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)
Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016
MN leaflet/instructions for use, also at www.mn-net.com
If necessary, observe other country-specific regulations.

15.2 Chemical safety assessment
not necessary for these small amounts

SECTION 16: Other information

16.1 Changes compared to the last version
in preparation

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

16.2.2 List of relevant P phrases

P280sh	Wear protective gloves/eye protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.

16.3 Recommended restriction on use

Only for professional user.
Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!
Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!
An individual package of this product or test kit has a moderate hazardous potential.

16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021
Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres
SUVA .CH, limit values in the air at work 2009, revised on 01/2009
Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)
Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG
Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)
Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)
Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)

Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)
Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)
Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)
TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019
Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)
Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG
Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)
Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)
Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)

revisions/updates

Reason for revision:
2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary
2014-04 adjustment according Regulation 487/2013/EU
2016-03 adjustment according Regulation 1221/2015/EU
2017–08 adjustment according the Ordinance on Ethanol Denaturation 2016/1867/EU
2017-11 adjustment according the ECHA registration dossier
2022-11 adjustment according Regulation 878/2020/EU

16.5 Further information

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16.6 Legend / Abbreviations

acc:	according
ADR:	Convention concerning the International Carriage of Dangerous Goods by Road
Act:	acute
BAT:	biological workplace tolerance value
CAO:	Cargo Aircraft Only
Carc:	carcinogen
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling and Packaging regulation
CMR:	carcinogen, mutagen, reproduction toxic
Corr:	corrosive
COD:	chemical oxigen demand
CSCL:	Chemical Substance Control Law (Jp)
Dam:	damage

DNEL:	Derived No-Effect Level (for workers)
derm:	dermal
dog:	dog
EC10:	Concentration causing a toxic effect in 10% of the test organisms
EC:	European Community
EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not spezified)
GHS:	Global Harmonized System of Classification and Labeling of Chemicals
gpg:	guinea pig
ICAO:	International Civil Aviation Organization
ihl:	inhaled
IMDG:	International Maritime Dangerous Goods Code
intrav:	intravenous
ipt:	intraperitonaeal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	letale concentration 50%
LD50:	letale dosis 50%
leuciscus idus:	fisch, ide, orfe
MAK:	maximum workplace concentration
Met:	Metall
mus:	mouse
Muta:	mutagen
NIOSH:	National Institute for Occupational Safety and Health (US)
NRD:	Non-rapidly degradable
onchorhynchus mykiss:	fish, rainbow trout
orl:	oral
OSHA:	Occupational Safety and Health Administration
PAX:	transport on passenger planes allowed
PBT:	persistent, bioaccumulating, toxic substance
pH:	pH value
pimephales promelas:	fish, fathead minnow
PNEC:	Predicted No Effected Concentration
PROC 15:	Process category 'for laboratory use'
PRTR:	Law for PRTR and Promotion of Chemical Management (Jp)
PVC:	polyvinyl chloride
quail:	bird, quail
rat:	rat
rbt:	rabbit
RD:	rapidly degradable
RE:	repeated
REACh:	Registration, Evaluation, Authorisation and Restriction of Chemicals
REF:	item number, reference number
Reg.No.:	rRegistration number
Repr:	harmful to reproduction
Resp:	respiratory
RIP:	REACH Implementations Projects
scu:	sub cutan
SDS:	safety data sheet
Sens:	sensitisation
STEL:	short term exposure limit
STOT:	Specific Target Organ Toxicity
SVHC:	Substance of Very High Concern
t/a:	tons per year
TCCA:	Toxic Chemicals Control Act (S. Korea)
Tox:	toxic
TSCA:	The Toxic Substances Control Act (US)
TWA:	time weighted average
TRGS:	technical regulations (DE)
vPvB:	very persistent, very bioaccumulating substance

16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.