

SAFETY DATA SHEET

according to Occupational Safety And Health (Classification,
Labelling And Safety Data Sheet Of Hazardous Chemicals)
Regulations 2013 (CLASS 2013)

Revision Date 29.08.2018

Version 1.6

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

1.1 Product identifier

Catalogue No. 109293

Product name KOVACS' indole reagent for microbiology

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Biochemical research/analysis
For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt *Germany* Telefon:+49 6151 72-0
Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com
Regional representation Merck Sdn. Bhd. (Co. No: 178145), No. 4, Jalan U1/26, Section U1,
Hicom Glenmarie Industrial Park, 40150 Shah Alam, Selangor. Tel:
03-74943688 Fax: 03-74910850

1.4 Emergency telephone number Customer Call Centre: + 62 0800 140 1253 (Toll Free)

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to CLASS regulations 2013

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Catalogue No.	109293
Product name	KOVACS' indole reagent for microbiology

Flammable liquid, Category 3, H226
Corrosive to metals, Category 1, H290
Acute toxicity, Category 4, Oral, H302
Skin irritation, Category 2, H315
Serious eye damage, Category 1, H318
Skin sensitisation, Category 1, H317
Specific target organ toxicity - single exposure, Category 3, Central nervous system, H336
Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335
Chronic aquatic toxicity, Category 3, H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to CLASS regulations 2013

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

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Precautionary statements

Prevention

P210 Keep away from heat.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P280 Wear protective gloves.

P280 Wear eye protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

Contains: n-butanol, 4-Dimethylaminobenzaldehyde

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Product name KOVACS' indole reagent for microbiology

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Mixture of inorganic and organic compounds

3.1 Substance

Not applicable

3.2 Mixture

Hazardous components according to CLASS regulations 2013

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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n-butanol ($\geq 50\%$ - $< 80\%$)		
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Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

71-36-3	*)	
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Flammable liquid, Category 3, H226

Acute toxicity, Category 4, H302

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Specific target organ toxicity - single exposure, Category 3, H336

Specific target organ toxicity - single exposure, Category 3, H335

asid hidroklorik ($\geq 10\%$ - $< 20\%$)		
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Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

-	*)	
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Corrosive to metals, Category 1, H290

Skin corrosion, Category 1B, H314

Specific target organ toxicity - single exposure, Category 3, H335

4-Dimethylaminobenzaldehyde ($\geq 3\%$ - $< 10\%$)		
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100-10-7	*)	
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Eye irritation, Category 2, H319

Skin sensitisation, Category 1, H317

Chronic aquatic toxicity, Category 2, H411

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Consult a physician.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, somnolence, Drowsiness, Cough, Shortness of breath
depressed respiration, Dizziness, narcosis, inebriation, Nausea, Vomiting, cardiovascular disorders, CNS disorders

Irritation and corrosion, Allergic reactions, somnolence, Drowsiness, Cough, Shortness of breath
Risk of serious damage to eyes.

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4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Foam, Carbon dioxide (CO₂), Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.

Pay attention to flashback.

Fire may cause evolution of:

Hydrogen chloride gas, nitrogen oxides

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No metal containers.

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

n-butanol (71-36-3)

MY OEL	Skin designation:	Can be absorbed through the skin.
	Ceiling Limit Value:	50 ppm 152 mg/m ³

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MY OEL	Ceiling Limit Value:	5 ppm 7.5 mg/m ³
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8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

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Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.40 mm
Break through time:	> 480 min

splash contact:

Glove material:	polychloroprene
Glove thickness:	0.65 mm
Break through time:	> 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril® -Velours (full contact), KCL 720 Camapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: filter ABEK

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The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	yellow
Odour	characteristic odour
Odour Threshold	No information available.
pH	< 1 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	36 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.

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Lower explosion limit	No information available.
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Upper explosion limit	No information available.
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Vapour pressure	No information available.
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Relative vapour density	No information available.
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Density	0.92 g/cm ³ at 20 °C
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Relative density	No information available.
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Water solubility	at 20 °C soluble
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Partition coefficient: n-octanol/water	No information available.
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Auto-ignition temperature	No information available.
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Decomposition temperature	No information available.
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Viscosity, dynamic	No information available.
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Explosive properties	Not classified as explosive.
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Oxidizing properties	none
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9.2 Other data

Corrosion	May be corrosive to metals.
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SECTION 10. Stability and reactivity

10.1 Reactivity

has a corrosive effect

Vapour/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of explosion with:

Alkali metals, conc. sulfuric acid

Risk of ignition or formation of inflammable gases or vapours with:

carbides, lithium silicide, Fluorine, Strong oxidizing agents, chromium(VI) oxide

Generates dangerous gases or fumes in contact with:

Aluminium, hydrides, formaldehyde, Metals, strong alkalis, Sulphides

Exothermic reaction with:

Amines, potassium permanganate, salts of oxyhalogenic acids, semimetallic oxides, semimetallic hydrogen compounds, Aldehydes, vinylmethyl ether, Alkaline earth metals, strong reducing agents, Acid chlorides

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

various metals, rubber, various plastics

Metals

10.6 Hazardous decomposition products

in the event of fire: See section 5.

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Product name	KOVACS' indole reagent for microbiology

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Acute toxicity estimate: 1,242 mg/kg

Calculation method

Symptoms: Nausea, Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.

Acute toxicity estimate: 1,242 mg/kg

Calculation method

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

This information is not available.

Skin irritation

Mixture causes skin irritation.

Mixture causes skin irritation.

Eye irritation

Mixture causes serious eye damage.

Mixture causes serious eye damage.

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Sensitisation

Mixture may cause an allergic skin reaction.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

Mixture may cause drowsiness or dizziness.

Target Organs: Central nervous system

Mixture may cause respiratory irritation.

Target Organs: Respiratory system

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

After absorption:

CNS disorders, Dizziness, inebriation, drop in blood pressure, cardiovascular disorders,
depressed respiration, narcosis

Damage to:

Liver, Kidney

Other dangerous properties can not be excluded.

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Handle in accordance with good industrial hygiene and safety practice.

Components

n-butanol

Acute oral toxicity

LD50 Rat: 790 mg/kg
(RTECS)

Acute inhalation toxicity

LC50 Rat: > 18 mg/l; 4 h ; vapour
OECD Test Guideline 403
(highest concentration to be prepared)

Acute dermal toxicity

LD50 Rabbit: 3,430 mg/kg
OECD Test Guideline 402

Skin irritation

Rabbit
Result: Irritations
Draize Test

Eye irritation

Rabbit
Result: Irreversible effects on the eye
OECD Test Guideline 405

Repeated dose toxicity

Rat
male and female
Oral
90 d
daily
NOAEL: 125 mg/kg
LOAEL: 500 mg/kg
OECD Test Guideline 408

Subchronic toxicity

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Product name	KOVACS' indole reagent for microbiology

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(ECHA)

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(ECHA)

In vitro mammalian cell gene mutation test

Result: negative

Method: OECD Test Guideline 476

Teratogenicity

Application Route: Oral

Rat

Number of exposures: daily

(ECHA)

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Skin irritation

Rabbit

Result: Corrosive

OECD Test Guideline 404

Eye irritation

Rabbit

Result: Irreversible effects on the eye

OECD Test Guideline 405

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Catalogue No.	109293
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Sensitisation

Maximisation Test Guinea pig

Result: Does not cause skin sensitisation.

Method: OECD Test Guideline 406

4-Dimethylaminobenzaldehyde

Acute oral toxicity

LD50 Rat: > 2,000 mg/kg

OECD Test Guideline 423

Skin irritation

In vitro study

Result: negative

OECD Test Guideline 439

Eye irritation

In vitro study

Result: Eye irritation

OECD Test Guideline 492

In vitro study

Result: non-corrosive

OECD Test Guideline 437

Sensitisation

Local lymph node assay (LLNA) Mouse

Result: positive

Method: OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

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Catalogue No.	109293
Product name	KOVACS' indole reagent for microbiology

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Caustic even in diluted form.

Harmful effect due to pH shift.

Discharge into the environment must be avoided.

Components

n-butanol

Toxicity to fish

static test LC50 Pimephales promelas (fathead minnow): 1,376 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): 1,328 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

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Catalogue No.	109293
Product name	KOVACS' indole reagent for microbiology

Toxicity to algae

static test EC50 *Pseudokirchneriella subcapitata* (green algae): 225 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test EC50 *Pseudomonas putida*: 4,390 mg/l; 17 h

DIN 38412 TEIL 8

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC *Daphnia magna* (Water flea): 4.1 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

Biodegradability

98 %; 28 d

OECD Test Guideline 301E

Readily biodegradable

Ratio BOD/ThBOD

BOD5 33 %

(IUCLID)

Partition coefficient: n-octanol/water

log Pow: 1 (25 °C)

OECD Test Guideline 117

Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

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Toxicity to fish

Lepomis macrochirus (Bluegill sunfish): 20.5 mg/l; 96 h

OECD Test Guideline 203

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Product name	KOVACS' indole reagent for microbiology

Toxicity to daphnia and other aquatic invertebrates

EC50: 1.3 mg/l; 48 h

OECD Test Guideline 202

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

4-Dimethylaminobenzaldehyde

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 45.7 mg/l; 96 h

(External MSDS)

Toxicity to daphnia and other aquatic invertebrates

semi-static test EC50 Daphnia magna (Water flea): 1.58 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae

Growth inhibition ErC50 Desmodesmus subspicatus (green algae): 72.7 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Growth inhibition EC10 Desmodesmus subspicatus (green algae): 42.2 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Biodegradability

0 %; 28 d; aerobic

OECD Test Guideline 301F

Not readily biodegradable.

Partition coefficient: n-octanol/water

log Pow: 1.8 (23 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

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Surface tension

65.4 mN/m

at 20 °C

Method: OECD Test Guideline 115

similar to water

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SECTION 13. Disposal considerations

Waste treatment methods

According to Quality Environment Regulation (Scheduled Waste) 2005, waste need to be sent to designated premise for recycle, treatment or disposal. Please contact Kualiti Alam for waste classification and correct disposal method.

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2920
14.2 Proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (BUTANOL, HYDROCHLORIC ACID)
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

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14.1 UN number	UN 2920
14.2 Proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (BUTANOL, HYDROCHLORIC ACID)
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2920
14.2 Proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (BUTANOL, HYDROCHLORIC ACID)
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes

EmS	F-E S-C
Segregation Group	0001 Acids

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

SECTION 15. Regulatory information

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

All national and local regulations, including Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013, if applicable to the use, should be observed.

National legislation

Storage class	3
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15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

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H226 Flammable liquid and vapour.
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210 Keep away from heat.
P273 Avoid release to the environment.
P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/ attention.

Contains: n-butanol, 4-Dimethylaminobenzaldehyde

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

Merck Sdn. Bhd. (Co. No: 178145), No. 4, Jalan U1/26, Section U1, Hicom Glenmarie Industrial

SAFETY DATA SHEET

according to Occupational Safety And Health (Classification,
Labelling And Safety Data Sheet Of Hazardous Chemicals)
Regulations 2013 (CLASS 2013)

Catalogue No. 109293

Product name KOVACS' indole reagent for microbiology

Park, 40150 Shah Alam, Selangor. Tel: 03-74943688 Fax: 03-74910850

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.