

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

1.1 Product identifier

Trade name **µicro Scanspray / 500 ml**
 Registration number (REACH) not relevant (mixture)

Other means of identification

article number 90418

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

Relevant identified uses coating for particular industrial and professional uses

1.3 Details of the supplier of the safety data sheet

smart optics Sensortechnik GmbH
 Lise-Meitner-Allee 10
 44801 Bochum
 Germany

Phone: +49 234 / 29 828-0

Fax: +49 234 / 29 828-20

E-mail: info@smartoptics.de

Website: www.smartoptics.de

1.4 Emergency telephone number

Emergency information service +49 234 / 29 828-0
 This number is only available during the following office hours: Mon-Fri 08:00 – 17:00 (CET)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.3	aerosols	Cat. 1	(Aerosol 1)	H222,H22 9
3.8D	specific target organ toxicity – single exposure (narcotic effects, drowsiness)	Cat. 3	(STOT SE 3)	H336
4.1C	hazardous to the aquatic environment – chronic hazard	Cat. 3	(Aquatic Chronic 3)	H412

Remarks

For full text of H-phrases: see [SECTION 16](#).

Supplemental hazard information

Code	Supplemental hazard information
EUH066	repeated exposure may cause skin dryness or cracking

The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms

GHS02, GHS07



Hazard statements

- H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Precautionary statements – general

- P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.

Precautionary statements – prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

Precautionary statements – response

- P312 Call a POISON CENTRE/doctor if you feel unwell.

Precautionary statements – storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Precautionary statements – disposal

- P501 Dispose of contents/container to industrial combustion plant.

Additional labelling requirements

- EUH066 Repeated exposure may cause skin dryness or cracking.

Hazardous ingredients for labelling: pentane

2.3 Other hazards

Repeated exposure may cause skin dryness or cracking.


SECTION 3: Composition/information on ingredients










3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms
butane	CAS No 106-97-8 EC No 203-448-7 REACH REC. No 01-2119474691-32-xxxx	50 – < 75	Flam. Gas 1 / H220 Press. Gas L / H280	

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms
propane	CAS No 74-98-6 EC No 200-827-9 REACH REC. No 01-2119486944-21-xxxx	10 – < 25	Flam. Gas 1 / H220 Press. Gas L / H280	 
pentane	CAS No 109-66-0 EC No 203-692-4 REACH REC. No 01-2119459286-30-xxxx	10 – < 25	Flam. Liq. 1 / H224 STOT SE 3 / H336 Asp. Tox. 1 / H304 Aquatic Chronic 2 / H411	   
isobutane	CAS No 75-28-5 EC No 200-857-2 REACH REC. No 01-2119485395-27-xxxx	1 – < 5	Flam. Gas 1 / H220 Press. Gas L / H280	 
ethanol	CAS No 64-17-5 EC No 200-578-6 REACH REC. No 01-2119457610-43-xxxx	1 – < 5	Flam. Liq. 2 / H225	

For full text of abbreviations: see [SECTION 16](#).

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Narcotic effects.

4.3 Indication of any immediate medical attention and special treatment needed

None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

water spray, BC-powder

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see [section 5](#). Personal protective equipment: see [section 8](#). Incompatible materials: see [section 10](#). Disposal considerations: see [section 13](#).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- **Measures to prevent fire as well as aerosol and dust generation**

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- **Flammability hazards**

Do not spray on an open flame or other ignition source. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

- **Packaging compatibilities**

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See [section 16](#) for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Cou ntry	Name of agent	CAS No	Ide ntifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Nota tion	Source
EU	n- pentane	109- 66-0	IOEL V	1,000	3,000						2006/ 15/EC
GB	butane	106- 97-8	WEL	600	1,450	750	1,810				EH40/ 2005
GB	Pentane	109- 66-0	WEL	600	1,800						EH40/ 2005
GB	titanium dioxide	1346 3-67- 7	WEL		10					I	EH40/ 2005
GB	titanium dioxide	1346 3-67- 7	WEL		4					r	EH40/ 2005
GB	ethanol	64- 17-5	WEL	1,000	1,920						EH40/ 2005

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

I Inhalable fraction

r Respirable fraction

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

- **relevant DNELs of components of the mixture**

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
pentan	109-66-0	DNEL	432 mg/kg	Human, dermal	Worker (industry)	chronic – systemic Effects
pentan	109-66-0	DNEL	3,000 mg/m ³	Human, inhalatory	Worker (industry)	chronic – systemic Effects
ethanol	64-17-5	DNEL	1,900	Human,	Worker	acute – local Effects

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
			mg/m ³	inhalatory	(industry)	
ethanol	64-17-5	DNEL	343 mg/kg	Human, dermal	Worker (industry)	chronic – systemic Effects
ethanol	64-17-5	DNEL	950 mg/m ³	Human, inhalatory	Worker (industry)	chronic – systemic Effects

• **relevant PNECs of components of the mixture**

Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
pentane	109-66-0	PNEC	3,600 µg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
pentane	109-66-0	PNEC	880 µg/l	aquatic organisms	water	intermittent release
ethanol	64-17-5	PNEC	580 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
ethanol	64-17-5	PNEC	2.75 mg/l	aquatic organisms	water	intermittent release

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Personal protective equipment shall be used when the risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization.

Eye/face protection

Wear eye/face protection.

Skin protection

• **hand protection**

Wear suitable gloves. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

[In case of inadequate ventilation] wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties Appearance

Physical state	aerosol (spray aerosol)
Colour	white
Odour	characteristic

Other physical and chemical parameters

pH (value)	
Melting point/freezing point	-187.6 °C at 1,013 hPa
Initial boiling point and boiling range	-161.5 °C at 1,013 hPa
Flash point	-40 °C
Evaporation rate	not determined
Flammability (solid, gas)	Flammable aerosol in accordance with GHS criteria
Explosive limits	
• lower explosion limit (LEL)	1.4 vol%
• upper explosion limit (UEL)	15 vol%
Vapour pressure	2,700 Pa
Density	0.67 – 0.69 g/cm ³ at 20 °C
Solubility(ies)	not determined
Partition coefficient	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	260 °C (auto-ignition temperature (liquids and gases)) 537 °C (relative self-ignition temperature for solids)
Viscosity	not relevant (aerosol)
Explosive properties	none
Oxidising properties	none

9.2 Other information

Solvent content	13.58 %
Solid content	1.764 %
propellant content	84.66 %

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".
The mixture contains reactive substance(s): risk of ignition

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Do not spray on an open flame or other ignition source. – Keep away from heat.

Hints to prevent fire or explosion

Protect from sunlight.

Physical stresses which might result in a hazardous situation and have to be avoided
strong shocks

10.5 Incompatible materials
oxidisers

10.6 Hazardous decomposition products
Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see [section 5](#).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

GHS of the United Nations, annex 4: May be harmful if swallowed.

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

Specific target organ toxicity (STOT)

- **Specific target organ toxicity – single exposure**

May cause drowsiness or dizziness.

- **Specific target organ toxicity – repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Other information

Repeated exposure may cause skin dryness or cracking.

SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
butane	106-97-8	LC50	27,98 mg/l	fish	96 h
butane	106-97-8	EC50	7.71 mg/l	algae	96 h
propane	74-98-6	LC50	27,98 mg/l	fish	96 h
propane	74-98-6	EC50	7.71 mg/l	algae	96 h
pentane	109-66-0	LL50	27,55 mg/l	fish	96 h
pentane	109-66-0	EL50	48.11 mg/l	aquatic invertebrates	48 h
pentane	109-66-0	EC50	2.8 mg/l	aquatic invertebrates	48 h
isobutane	75-28-5	LC50	49.9 mg/l	fish	96 h
isobutane	75-28-5	EC50	19,37 mg/l	algae	96 h
ethanol	64-17-5	LC50	14.2 g/l	fish	96 h
ethanol	64-17-5	EC50	12.9 g/l	fish	96 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
ethanol	64-17-5	LC50	>0.08 mg/l	Fisch	42 d
ethanol	64-17-5	EC50	22.6 g/l	Alge	10 d
ethanol	64-17-5	ErC50	675 mg/l	Alge	4 d

12.2 Persistence and degradability

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time
pentane	109-66-0	oxygen depletion	3 %	7 d
ethanol	64-17-5	oxygen depletion	74 %	5 d

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
butane	106-97-8		1.09 (pH value: 7, 20 °C)	
propane	74-98-6		1.09 (pH value: 7, 20 °C)	
pentane	109-66-0	171	3.45 (pH value: 7, 25 °C)	
isobutane	75-28-5		1.09 (pH value: 7, 20 °C)	
ethanol	64-17-5		-0.35 (pH value: 7.4, 24 °C)	

- 12.4 Mobility in soil**
Data are not available.
- 12.5 Results of PBT and vPvB assessment**
Data are not available.
- 12.6 Other adverse effects**
Data are not available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods**
Sewage disposal-relevant information
 Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.
- Waste treatment of containers/packageings**
 It is a dangerous waste; only packageings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.
- Remarks**
 Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

- 14.1 UN number** 1950
- 14.2 UN proper shipping name** AEROSOLS
- 14.3 Transport hazard class(es)**
 Class 2 (gases) (aerosol)
 Subsidiary risk(s) 2.1 (flammability)
- 14.4 Packing group** not assigned to a packing group
- 14.5 Environmental hazards** none (non-environmentally hazardous acc. to the dangerous goods regulations)
- 14.6 Special precautions for user**
 Provisions for dangerous goods (ADR) should be complied within the premises.
- 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code**
 The cargo is not intended to be carried in bulk.
- Information for each of the UN Model Regulations**
- Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)**

UN number	1950
Proper shipping name	AEROSOLS
Class	2
Classification code	5F
Danger label(s)	2.1



Special provisions (SP)	190, 327, 344, 625
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D

• **International Maritime Dangerous Goods Code (IMDG)**

UN number	1950
Proper shipping name	AEROSOLS
Class	2.1
Danger label(s)	2.1



Special provisions (SP)	63, 190, 277, 327, 344, 381, 959
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
EmS	F-D, S-U
Stowage category	-

• **International Civil Aviation Organization (ICAO-IATA/DGR)**

UN number	1950
Proper shipping name	Aerosols, flammable
Class	2.1
Danger label(s)	2.1



Special provisions (SP)	A145, A167
Excepted quantities (EQ)	E0
Limited quantities (LQ)	30 kg

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

• **Directive 75/324/EEC relating to aerosol dispensers**

Classification of the gas/aerosol Extremely flammable

Labelling

Pressurized container: may burst if heated
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Do not pierce or burn, even after use
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122 °F

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2006/15/EC	Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Chronic	Hazardous to the aquatic environment – chronic hazard
Asp. Tox.	Aspiration hazard
Abbr.	Descriptions of used abbreviations
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Flam. Gas	Flammable gas
Flam. Liq.	Flammable liquid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
IOELV	Indicative occupational exposure limit value
log KOW	n-Octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration

Abbr.	Descriptions of used abbreviations
ppm	Parts per million
Press. Gas	Gas under pressure
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity – single exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards/environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H229	Pressurized container: may burst if heated.
H280	Contains gas under pressure; may explode if heated.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Specific end use(s)

Coating for particular industrial and professional uses

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.