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

1.1 Product identifier

Trade name: PURE AIR

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

Application of the substance / the mixture coating agent

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
Mursall Active Coating GmbH
Löwensternstraße 4
5411 Oberalm, Austria
Tel. +43 6245 21811

Further information obtainable from:
Robert Kummerer
Email: r.kummerer@active-coating.com

1.4 Emergency telephone number:

+43 6245 21811
Available during office hours:
Mo. – Th.: 8-12 h und 13-17 h
Fr.: 8-13 h

Call the national emergency number!

*
SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 2	H225 Highly flammable liquid and vapour.
Eye Irrit. 2	H319 Causes serious eye irritation.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Hazard pictograms

GHS02 GHS07

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.

(Contd. on page 2)

(Contd. of page 1)

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P280	Wear protective gloves / eye protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Contains nanoparticles. Aerosols containing nanoparticles may be formed during spraying. Do not inhale aerosols.

Results of PBT and vPvB assessment

PBT: No data available.

vPvB: No data available.

*

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description:

Mixture of substances listed below with nonhazardous additions.

Contains nanoparticles.

Dangerous components:		
CAS: 64-17-5 EINECS: 200-578-6 Index number: 603-002-00-5	ethanol Flam. Liq. 2, H225 Eye Irrit. 2, H319 Specific concentration limit: Eye Irrit. 2; H319: C ≥ 50 %	40 – 80%
CAS: 78-10-4 EINECS: 201-083-8 Index number: 014-005-00-0	tetraethyl silicate Flam. Liq. 3, H226 Acute Tox. 4, H332; Eye Irrit. 2, H319; STOT SE 3, H335	< 2.5%
CAS: 1314-13-2 EINECS: 215-222-5 Index number: 030-013-00-7	zinc oxide nano Aquatic Acute 1, H400; Aquatic Chronic 1, H410	< 2.5%
CAS: 78-93-3 EINECS: 201-159-0 Index number: 606-002-00-3	butanone Flam. Liq. 2, H225 Eye Irrit. 2, H319; STOT SE 3, H336 EUH066	< 1%

Additional information: For the wording of the listed hazard phrases refer to section 16.

(Contd. on page 3)

(Contd. of page 2)

SECTION 4: First aid measures

4.1 Description of first aid measures
General information:
In case of discomfort or doubt, seek medical advice.
If unconscious, use a stable lateral position and do not administer anything through mouth.
Immediately remove any clothing soiled by the product.
After inhalation:
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
After skin contact:
Wash with plenty of soap and water.
Take off contaminated clothing and wash it before reuse.
Seek medical treatment in case of complaints.
After eye contact:
Rinse opened eye for several minutes under running water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Seek medical treatment.
After swallowing:
Rinse mouth.
Do NOT induce vomiting.
Call a doctor immediately.
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed
Depending on the condition of the patients, the doctor must assess the symptoms and the overall general condition.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: Water with full jet
5.2 Special hazards arising from the substance or mixture
In case of fire, the following can be released:
COx
In a fire or if heated, a pressure increase will occur and the container may burst.
Fumes can combine with air to form an explosive mixture.
5.3 Advice for firefighters
Protective equipment:
Wear self-contained respiratory protective device.
Wear fully protective suit.
Additional information
Cool endangered receptacles with water spray.

(Contd. on page 4)

(Contd. of page 3)

Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Restricted access to the affected area until cleaning work is completed.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Avoid contact with skin and eyes.
Do not breathe vapour/spray.
Remove ignition sources, if possible without danger.
6.2 Environmental precautions:
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding, inert material (sand, diatomite, acid binders, universal binders).
Dispose of the material collected according to regulations.
Ensure adequate ventilation.
6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Keep receptacles tightly sealed.
Avoid contact with skin and eyes.
Avoid breathing mist/vapours/spray.
Eye wash bottles and emergency showers should be provided in the immediate area near the workplace.
Use personal protective equipment as required.
Observe protective measures and safety instructions.
Information about fire - and explosion protection:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Use non-sparking tools.
Ground and bond container and receiving equipment.
Traces of flammable substances may collect in the steam chamber of enclosed systems. Keep clear of ignition sources.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Store in a cool location.
Store in dry conditions.
Protect from heat and direct sunlight.

(Contd. on page 5)

(Contd. of page 4)

Protect from frost.
Store receptacle in a well ventilated area.
Store in accordance with local/regional/national/international regulations.
Information about storage in one common storage facility: Store away from oxidising agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Recommended storage temperature: room temperature
Storage class: 3
7.3 Specific end use(s) No further relevant information available.

*
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:	
CAS: 64-17-5 ethanol	
WEL	Long-term value: 1920 mg/m³, 1000 ppm
CAS: 78-10-4 tetraethyl silicate	
WEL	Long-term value: 44 mg/m³, 5 ppm
CAS: 78-93-3 butanone	
WEL	Short-term value: 899 mg/m³, 300 ppm Long-term value: 600 mg/m³, 200 ppm Sk, BMGV

Regulatory information WEL: EH40/2020

DNELs		
CAS: 64-17-5 ethanol		
Oral	Long-term exposure - systemic effects	87 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	206 mg/kg bw/d (consumer)
		343 mg/kg bw/d (workers)
Inhalative	Long-term exposure - systemic effects	114 mg/m³ (consumer)
		950 mg/m³ (workers)
CAS: 78-10-4 tetraethyl silicate		
Dermal	Long-term exposure - systemic effects	3 mg/kg bw/d (consumer)
		56 mg/kg bw/d (workers)
	short-term exposure - systemic effects	3 mg/kg bw (consumer)
Inhalative	Long-term exposure - systemic effects	14 mg/m³ (consumer)
		85 mg/m³ (workers)
	Long-term exposure - local effects	14 mg/m³ (consumer)
		85 mg/m³ (workers)
	short-term exposure - systemic effects	14 mg/m³ (consumer)

(Contd. on page 6)

(Contd. of page 5)

	short-term exposure - local effects	85 mg/m³ (workers)
CAS: 1314-13-2 zinc oxide nano		
Oral	Long-term exposure - systemic effects	0.83 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	83 mg/kg bw/d (consumer)
		83 mg/kg bw/d (workers)
Inhalative	Long-term exposure - systemic effects	2.5 mg/m³ (consumer)
		5 mg/m³ (workers)
	Long-term exposure - local effects	0.5 mg/m³ (workers)
CAS: 78-93-3 butanone		
Oral	Long-term exposure - systemic effects	31 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	412 mg/kg bw/d (consumer)
		1,161 mg/kg bw/d (workers)
Inhalative	Long-term exposure - systemic effects	106 mg/m³ (consumer)
		600 mg/m³ (workers)

PNECs	
CAS: 64-17-5 ethanol	
fresh water	960 µg/l
sea water	790 µg/l
intermittent release (fresh water)	2.75 mg/l
STP	580 mg/l
sediment (fresh water)	3.6 mg/kg dw
sediment (sea water)	2.9 mg/kg dw
soil	0.63 mg/kg dw
oral	0.38 mg/kg food
CAS: 78-10-4 tetraethyl silicate	
fresh water	0.19 mg/l
sea water	0.019 mg/l
intermittent release (fresh water)	10 mg/l
STP	4,000 mg/l
sediment (fresh water)	0.83 mg/kg dw
sediment (sea water)	0.083 mg/kg dw
soil	0.05 mg/kg dw
CAS: 1314-13-2 zinc oxide nano	
fresh water	20.6 µg/l
sea water	6.1 µg/l
STP	0.1 mg/l
sediment (fresh water)	117.8 mg/kg dw
sediment (sea water)	56.5 mg/kg dw

(Contd. on page 7)

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soil	35.6 mg/kg dw
CAS: 78-93-3 butanone	
fresh water	55.8 mg/l
sea water	55.8 mg/l
intermittent release (fresh water)	55.8 mg/l
STP	709 mg/l
sediment (fresh water)	284.74 mg/kg dw
sediment (sea water)	284.7 mg/kg dw
soil	22.5 mg/kg dw
oral	1,000 mg/kg food

Ingredients with biological limit values:	
CAS: 78-93-3 butanone	
BMGV	70 µmol/L Medium: urine Sampling time: post shift Parameter: butan-2-one

Regulatory information BMGV: EH40/2011
Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls
Appropriate engineering controls
No further data; see item 7.
Technical measures and the use of suitable working methods take priority over the use of personal protective equipment.
Individual protection measures, such as personal protective equipment
General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Do not eat or drink while working.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Immediately remove all soiled and contaminated clothing
Avoid breathing mist/vapours/spray.

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.
Respiratory protection:
If vapours/aerosols and/or inadequate ventilation are present, respiratory protection must be worn.
Hand protection

Protective gloves

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EN 374
The glove material has to be impermeable and resistant to the product/ the substance/ the mixture.
Material of gloves
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye/face protection

Tightly sealed goggles

EN 166
Body protection: Protective work clothing
Environmental exposure controls
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information	
Colour:	greenish
Odour:	Alcohol-like
Odour threshold:	No information available.
Melting point/freezing point:	No information available.
Boiling point or initial boiling point and boiling range	No information available.
Flammability	Not applicable.
Lower and upper explosion limit	
Lower:	3.5 Vol %
Upper:	15 Vol %
Flash point:	< 21 °C
Auto-ignition temperature:	Product is not selfigniting.

64-17-5	ethanol	363 - 425 ° C

Decomposition temperature:	No information available.
pH	Not determined.
Viscosity:	
Kinematic viscosity	No information available.

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Dynamic: No information available.
Solubility
water: miscible
Partition coefficient n-octanol/water (log value)

64-17-5	ethanol	-0,35 log Kow
78-93-3	butanone	0,3 log Kow

Vapour pressure: Not determined.
Density and/or relative density
Density: No information available.
Vapour density No information available.

9.2 Other information
Appearance:
Form: Fluid
Important information on protection of health and environment, and on safety.
Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Change in condition
Softening point/range
Oxidising properties No information available.
Evaporation rate No information available.

Information with regard to physical hazard classes
Explosives Void
Flammable gases Void
Aerosols Void
Oxidising gases Void
Gases under pressure Void
Flammable liquids
Highly flammable liquid and vapour.
Flammable solids Void
Self-reactive substances and mixtures Void
Pyrophoric liquids Void
Pyrophoric solids Void
Self-heating substances and mixtures Void
Substances and mixtures, which emit flammable gases in contact with water Void
Oxidising liquids Void
Oxidising solids Void
Organic peroxides Void
Corrosive to metals Void
Desensitised explosives Void

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SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions
Fumes can combine with air to form an explosive mixture.
Violent reactions with:
Alkali metals, alkaline earth metals, acetic anhydride, peroxides, phosphorus oxides, strong oxidants, nitric acid, nitrate, perchlorates, => explosion hazard
10.4 Conditions to avoid
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
10.5 Incompatible materials: No further relevant information available.
10.6 Hazardous decomposition products:
No decomposition if used and stored according to specifications.

* SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:		
ATE (Acute Toxicity Estimates)		
Inhalative	LC50/4 h	573 mg/l

CAS: 64-17-5 ethanol		
Oral	LD50	10,470 mg/kg (rat)
Inhalative	LC50/4 h	124.7 mg/l (rat)
CAS: 78-10-4 tetraethyl silicate		
Oral	LD50	6,270 mg/kg (rat)
Dermal	LD50	5,878 mg/kg (rabbit)
CAS: 1314-13-2 zinc oxide nano		
Oral	LD50	> 5,000 mg/kg (rat)
Inhalative	LC50/4h	2,500 mg/m³ (mouse)
CAS: 78-93-3 butanone		
Oral	LD50	2,193 mg/kg (rat)
Dermal	LD50	5,000 mg/kg (rabbit)

Skin corrosion/irritation Based on available data, the classification criteria are not met.
Serious eye damage/irritation
Causes serious eye irritation.
Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Based on available data, the classification criteria are not met.
Reproductive toxicity Based on available data, the classification criteria are not met.
STOT-single exposure Based on available data, the classification criteria are not met.

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STOT-repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Based on available data, the classification criteria are not met.
11.2 Information on other hazards

Endocrine disrupting properties		
CAS: 78-93-3	butanone	List II

* **SECTION 12: Ecological information**

12.1 Toxicity

Aquatic toxicity:	
CAS: 64-17-5 ethanol	
EC50 (48 h)	12,340 mg/l (daphnia) (Daphnia magna)
LC50 (96 h)	12,900 – 15,300 mg/l (fish) (Onchorhynchus mykiss)
CAS: 1314-13-2 zinc oxide nano	
LC50 (96 h)	0.169 mg/l (fish) (Onchorhynchus mykiss)
CAS: 78-93-3 butanone	
EC50 (48 h)	308 mg/l (daphnia)
LC50 (96 h)	2,993 mg/l (fish)
EC50 (96 h)	2,029 mg/l (algae)

12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
12.5 Results of PBT and vPvB assessment
PBT: No data available.
vPvB: No data available.
12.6 Endocrine disrupting properties For information on endocrine disrupting properties see section 11.
12.7 Other adverse effects
Remark: Harmful to fish
Additional ecological information:
General notes:
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Only dispose of product residues via authorised companies according to local legislation.

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European waste catalogue
Notes: The European Waste Catalogue (EWC) classifies waste materials and categorises them according to what they are and how they were produced. This may cause other classifications. The final decision belongs to the last user.

11 01 99	wastes not otherwise specified
16 03 05*	organic wastes containing hazardous substances

Uncleaned packaging:
Recommendation:
Dispose of packaging according to regulations on the disposal of packagings.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

14.1 UN number or ID number
ADR/RID/ADN, IMDG, IATA UN1170
14.2 UN proper shipping name
ADR/RID/ADN 1170 ETHANOL (ETHYL ALCOHOL) solution
IMDG ETHANOL (ETHYL ALCOHOL) solution
IATA ETHANOL solution
14.3 Transport hazard class(es)

ADR/RID/ADN, IMDG, IATA

Class 3 Flammable liquids.
Label 3
14.4 Packing group
ADR/RID/ADN, IMDG, IATA II
14.5 Environmental hazards: Not applicable.
14.6 Special precautions for user Warning: Flammable liquids.
Hazard identification number (Kemler code): 33
EMS Number: F-E,S-E
Stowage Category B
14.7 Maritime transport in bulk according to IMO instruments Not applicable.

Transport/Additional information:

ADR/RID/ADN
Limited quantities (LQ) 1L
Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

(Contd. on page 13)

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Transport category	2
Tunnel restriction code	D/E
IMDG	
Limited quantities (LQ)	1L
Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN 1170 ETHANOL (ETHYL ALCOHOL) SOLUTION, 3, II

*
SECTION 15: Regulatory information

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

Directive 2012/18/EU
Named dangerous substances - ANNEX I None of the ingredients is listed.
Seveso category P5c FLAMMABLE LIQUIDS
Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t

National regulations:

Information about limitation of use: Employment restrictions concerning juveniles must be observed.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.
Training hints
Regular training of staff involved in the transport of dangerous goods (in accordance with Chapter 1.3 ADR).
Before handling, storage or use for the first time, employees must be informed about the properties of the substance and about measures taken to ensure safety and environmental protection.

Department issuing SDS:
UmEnA GmbH
http://umena.at
Email: office@umena.at

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Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

*** Data compared to the previous version altered.**