



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

- **Product identifier**

- **Trade name:** ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

- **Article number:** K928

- **Registration number** 01-2119457610-43-XXXX

- **Relevant identified uses of the substance or mixture and uses advised against**

- **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU21 Consumer uses: Private households / general public / consumers

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

- **Product category**

PC1 Adhesives, sealants

PC3 Air care products

PC4 Anti-Freeze and de-icing products

PC8 Biocidal products (e.g. Disinfectants, pest control)

PC9a Coatings and paints, thinners, paint removers

PC9c Finger paints

PC12 Fertilizers

PC14 Metal surface treatment products, including galvanic and electroplating products

PC15 Non-metal-surface treatment products

PC16 Heat transfer fluids

PC17 Hydraulic fluids

PC18 Ink and toners

PC23 Leather tanning, dye, finishing, impregnation and care products

PC24 Lubricants, greases, release products

PC27 Plant protection products

PC28 Perfumes, fragrances

PC30 Photo-chemicals

PC31 Polishes and wax blends

PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids

PC35 Washing and cleaning products (including solvent based products)

PC39 Cosmetics, personal care products

- **Process category**

PROC1 Use in closed process, no likelihood of exposure

PROC2 Use in closed, continuous process with occasional controlled exposure

PROC3 Use in closed batch process (synthesis or formulation)

PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC7 Industrial spraying

PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring

PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation

PROC15 Use as laboratory reagent

PROC19 Hand-mixing with intimate contact and only PPE available

PROC20 Heat and pressure transfer fluids in dispersive, professional use but closed systems

- **Environmental release category**

ERC1 Manufacture of substances

ERC2 Formulation of preparations

ERC4 Industrial use of processing aids in processes and products, not becoming part of articles

(Contd. on page 2)

Safety data sheet

according to Regulation (EC) No. 1907/2006



Printing date 07.08.2012

Version number 1

Revision: 07.08.2012

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 1)

- ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC7 Industrial use of substances in closed systems
- ERC8a Wide dispersive indoor use of processing aids in open systems
- ERC8d Wide dispersive outdoor use of processing aids in open systems
- ERC9a Wide dispersive indoor use of substances in closed systems
- ERC9b Wide dispersive outdoor use of substances in closed systems

- **Application of the substance / the preparation** Laboratory chemical

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Carl Roth GmbH + Co. KG

Schoemperlenstraße 3-5

76185 Karlsruhe

Germany

Telefon: +49/(0)721 5606-0

Telefax: +49/(0)721 5606-149

E-Mail: sicherheit@carlroth.de

- **Further information obtainable from:** Department Health, Safety and Environment

- **Emergency telephone number:** Poison Centre Munich

Telefon +49/(0)89 19240

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



F+; Highly flammable

R11: Highly flammable.

- **Information concerning particular hazards for human and environment:**

This product is hazardous according to EEC directives 67/548/EEC and 1999/45/EC.

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS02

- **Signal word** Danger

- **Hazard statements**

H225 Highly flammable liquid and vapour.

- **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

- **Other hazards**

All chemicals are potentially dangerous. They should only be handled by specially trained personnel.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

(Contd. on page 3)

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 2)

· vPvB: Not applicable.

3 Composition/information on ingredients

· Dangerous components:

CAS: 64-17-5 EINECS: 200-578-6	ethanol F R11 Flam. Liq. 2, H225	~ 99%
CAS: 78-93-3 EINECS: 201-159-0	butanone Xi R36; F R11 R66-67 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	~ 1%

4 First aid measures



· Description of first aid measures

- **General information:** Remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air.
- **After skin contact:** Rinse with water
- **After eye contact:**
Rinse opened eye for 10 minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Rinse out mouth and drink a glass of water. Do not induce vomiting.
If there is any trouble seek medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
Use fire extinguishing methods suitable to surrounding conditions.
CO₂, powder or water spray. Fight larger fire with alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
In the event of fire development of hazardous combustion gases or vapours possible.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Vapours heavier than air. Beware of reignition.
Cool endangered receptacles with water spray.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Do not inhale vapours. Avoid contact with the eyes and skin.
Keep away from ignition sources.

(Contd. on page 4)

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 3)

- **Environmental precautions:**
Do not allow to enter sewers/ground water or penetrate the soil.
Avoid penetration into drainage system because of danger of explosion.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (e.g. Rotisorb® Art.-Nr. 1710.1).
Dispose of the material collected according to regulations.
Ensure adequate ventilation.
- **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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Keep receptacles tightly sealed.
- **Information about fire - and explosion protection:**
Fumes can combine with air to form an explosive mixture.



Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Keep away from sources of ignition and heat.
Storage temperature: +15°C - +25 °C
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

64-17-5 ethanol	
WEL (Great Britain)	Long-term value: 1920 mg/m ³ , 1000 ppm
78-93-3 butanone	
WEL (Great Britain)	Short-term value: 899 mg/m ³ , 300 ppm Long-term value: 600 mg/m ³ , 200 ppm Sk, BMGV
IOELV (EU)	Short-term value: 900 mg/m ³ , 300 ppm Long-term value: 600 mg/m ³ , 200 ppm

(Contd. on page 5)

Safety data sheet

according to Regulation (EC) No. 1907/2006



Printing date 07.08.2012

Version number 1

Revision: 07.08.2012

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 4)

- **DNELs**
- **Worker**
- **Long term exposure - systemic effects:**
inhalation: 950 mg/m³
dermal: 343 mg/kg
- **Short-term exposure - systemic effects:** inhalation: 1900 mg/m³
- **Customer**
- **long term exposure - systemic effects:**
inhalation: 114 mg/m³
orally: 87 mg/kg
dermal: 206 mg/kg
- **Short-term exposure - systemic effects:**
inhalation: 950 mg/m³
dermal: 950 mg/kg
- **PNECs**
fresh water: 0.96 mg/l
salt-water: 0.79 mg/l
sporadic release: 2.75 mg/l
sewage plant: 580 mg/l
sediment (fresh water): 3.6 mg/kg
Soil: 0.63 mg/kg

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

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

- Do not eat, drink or smoke while working.
- Avoid close or long term contact with the skin.
- Wash hands before breaks and at the end of work.
- Use skin protection cream for skin protection.

- **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.

- **Respiratory protection:**

Required when vapours/aerosols are generated.

Recommended filter typ:

Filter A (colour code: brown)

When selecting your respiratory unit: Consider the "Rules for the use of respiratory protection equipment" (BGR190).

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 6)

Safety data sheet

according to Regulation (EC) No. 1907/2006



Printing date 07.08.2012

Version number 1

Revision: 07.08.2012

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 5)

- **Material of gloves**

Butylcaoutchouc, thickness: 0,7 mm

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.

- **Penetration time of glove material**

Value for the permeation: Level ≥ 6

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

- **Body protection:** Antistatic and flame-retardent clothing.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

- **Odour:**

Alcohol-like

- **Odour threshold:**

Not determined.

- **pH-value (10 g/l) at 20°C:**

~ 7

- **Change in condition**

Melting point/Melting range:

-114°C (Ethanol)

Boiling point/Boiling range:

78°C (Ethanol)

- **Flash point:**

12°C (Ethanol)

- **Flammability (solid, gaseous):**

Not applicable.

- **Ignition temperature:**

425°C (Ethanol)

- **Decomposition temperature:**

Not determined.

- **Self-igniting:**

Not determined.

- **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapour mixtures is possible.

- **Explosion limits:**

Lower:

3.5 Vol % (Ethanol)

Upper:

15 Vol % (Ethanol)

- **Vapour pressure at 20°C:**

59 hPa (Ethanol)

- **Density at 20°C:**

~ 0.79 g/cm³

- **Relative density**

Not determined.

- **Vapour density**

Not determined.

- **Evaporation rate**

Not determined.

- **Solubility in / Miscibility with water:**

Fully miscible.

- **Partition coefficient (n-octanol/water):**

-0.31 log POW (Ethanol (exp.))

(Contd. on page 7)



Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 6)

- | | |
|---|--|
| <ul style="list-style-type: none"> · Viscosity: <li style="padding-left: 20px;">Dynamic at 20°C: <li style="padding-left: 20px;">Kinematic: · Other information | <p>1.2 mPas (Ethanol)</p> <p>Not determined.</p> <p>No further relevant information available.</p> |
|---|--|

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Contact with the below mentioned substances may cause violent reactions or an explosion.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
Alkali metals, alkaline earth metals, oxidizing agents, alkali oxides, anhydrides, peroxides, halogen compounds.
- **Hazardous decomposition products:** No information available.
- **Additional information:**
Volatile.
Denatured with Methyl-ethy-ketone (MEK).

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values relevant for classification:**

64-17-5 ethanol		
Oral	LD50	10470 mg/kg (rat) (OECD-401)
Inhalative	LC50/4 h	117-125 mg/l (rat) (OECD-403)

- **Specific symptoms in biological assay:**
Skin irritation test (rabbit): no irritations.
Eye irritation test (rabbit): slight irritations.
- **Primary irritant effect:**
- **on the skin:**
At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.
- **on the eye:** Slight irritations
- **after inhalation:** Slight irritations.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
After absorption CNS disorders, daze, dizziness, intoxication, drop in blood pressure, disorder of breathing and heart activity, narcosis.
After swallowing nausea, vomiting, gastric pain, liver damage.
- **Further information:** The product should be handled with the care usual when dealing with chemicals.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)** No information available

(Contd. on page 8)



Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 7)

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

- **Fish toxicity:**

- **64-17-5 ethanol**

LC50	13000 mg/l/96 h (Onchorhynchus mykiss) (OECD-203)
------	---

- **Daphnia toxicity:**

- **64-17-5 ethanol**

EC50	12340 mg/l/48 h (Daphnia magna)
------	---------------------------------

- **Algeal toxicity:**

- **64-17-5 ethanol**

IC5	5000 mg/l (Scenedesmus quadricauda) (Lit.)
-----	--

- **Bacterial toxicity:**

- **64-17-5 ethanol**

EC5	6500 mg/l (Pseudomonas putida) (IUCLID)
-----	---

- **Persistence and degradability** Easily biodegradable

- **Behaviour in environmental systems:**

- **Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:** Do not allow product to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation**

The disposal is regionally differently regulated, therefore the kind of disposal is to be inquired at the responsible authorities.

- **Uncleaned packaging:**

- **Recommendation:** Disposal according to official regulations.

14 Transport information

- **UN-Number**

- **ADR, IMDG, IATA**

UN1170

- **UN proper shipping name**

- **ADR**

1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

- **IMDG**

ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

- **IATA**

ETHANOL SOLUTION

(Contd. on page 9)

Safety data sheet

according to Regulation (EC) No. 1907/2006



Printing date 07.08.2012

Version number 1

Revision: 07.08.2012

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 8)

<ul style="list-style-type: none"> · Transport hazard class(es) · ADR, IMDG, IATA 	
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids. 3
<ul style="list-style-type: none"> · Packing group · ADR, IMDG, IATA 	II
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	No
<ul style="list-style-type: none"> · Special precautions for user · Danger code (Kemler): · EMS Number: 	Warning: Flammable liquids. 33 F-E,S-D
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Transport category · Tunnel restriction code 	
<ul style="list-style-type: none"> · UN "Model Regulation": 	UN1170, ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations:
- Information about limitation of use: Employment restrictions concerning juveniles must be observed.
- Waterhazard class: Water hazard class 1 (Assessment by list): slightly hazardous for water.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.
 - H319 Causes serious eye irritation.
 - H336 May cause drowsiness or dizziness.
- R11 Highly flammable.
- R36 Irritating to eyes.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.
- Department issuing MSDS: Department: Health, Safety and Environment
- Contact: Frau Weckemann

(Contd. on page 10)

Safety data sheet
according to Regulation (EC) No. 1907/2006



Printing date 07.08.2012

Version number 1

Revision: 07.08.2012

Trade name: ETHANOL ≥ 99.8 %, denatured with ~1 % MEK

(Contd. of page 9)

- Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport 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 Harmonized System of Classification and Labelling of Chemicals

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

- * Data compared to the previous version altered.

GB