

Printing date 03.12.2004

Reviewed on 03.12.2004

1 Identification of substance:

- **Product details:**
- **Trade name:** Trichloroethylene
- **Article number:** 7075, 7076, 7086
- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.
 P.O.Box 1
 7400 AA Deventer
 The Netherlands

Tel: (+31) (0)570 - 687500
 Fax: (+31) (0)570 - 687574

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

2 Composition/Data on components:

- **Chemical characterization:**
- **CAS No. Designation:**
79-01-6 trichloroethylene
- **Identification number(s):**
- **EINECS Number:** 201-167-4
- **EC Number:** 602-027-00-9

3 Hazards identification

- **Hazard designation:**



T Toxic

- **Information pertaining to particular dangers for man and environment**
 Has a narcotizing effect.
 R 45 May cause cancer.
 R 36/38 Irritating to eyes and skin.
 R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R 67 Vapours may cause drowsiness and dizziness.

4 First aid measures

- **After inhalation** In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
- **After swallowing** In case of persistent symptoms consult doctor.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **Special hazards caused by the material, its products of combustion or flue gases:**
Hydrogen chloride (HCl)
Phosgene gas
- **Protective equipment:** Wear self-contained breathing apparatus.

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6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:**
Inform respective authorities in case product reaches water or sewage system.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.

7 Handling and storage

- **Handling**
- **Information for safe handling:** Open and handle container with care.
- **Information about protection against explosions and fires:** Keep breathing equipment ready.
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.

8 Exposure controls and personal protection

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

- **Components with critical values that require monitoring at the workplace:**

79-01-6 Trichloroethylene

MEL	Short-term value: 820 mg/m ³ , 150 ppm
	Long-term value: 550 mg/m ³ , 100 ppm
Sk	

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Filter A
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Protection of hands:**
Protective gloves.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
PVA gloves
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**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:** Tightly sealed safety glasses.

9 Physical and chemical properties:

· General Information

Form: Fluid
 Colour: Colourless
 Smell: Like chlorine

· Change in condition

Melting point/Melting range: -86.4°C
 Boiling point/Boiling range: 87°C
 Flash point: 32°C
 Ignition temperature: 410°C
 Danger of explosion: Product is not explosive.
 Critical values for explosion:
 Lower: 7.9 Vol %
 Upper: 90 Vol %

Steam pressure at 20°C: 77 hPa
 Density at 20°C: 1.4642 g/cm³
 Solubility in / Miscibility with
 Water at 20°C: 1 g/l
 Segregation coefficient (n-octanol/water): 2.42 log POW

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
 · **Materials to be avoided:**
 · **Dangerous reactions** No dangerous reactions known
 · **Dangerous products of composition:**
 Hydrogen chloride (HCl)
 Chlorine
 Phosgen

11 Toxicological information

· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:**

Oral	LD50	4920 mg/kg (rat)
Inhalative	LC50/4h.	12500 mg/m ³ (rat)

· **Primary irritant effect:**· **on the skin:** Irritant· **on the eye:** irritation· **Sensitization:** No sensitizing effect known.

12 Ecological information:

· **Ecotoxic effects:**· **Remark:** Harmful to fish

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Trade name: *Trichloroethylene*

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· **General notes:***Harmful to aquatic organisms**Water danger class 3 (Assessment by list): extremely hazardous for water.**Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.**Danger to drinking water if even extremely small quantities leak into soil.*

13 Disposal considerations

· **Product:**· **Recommendation***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*· **Uncleaned packagings:**· **Recommendation:** *Disposal must be made according to official regulations.*

14 Transport information

· **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**· **ADR/RID-GGVS/E Class:** 6.1 (T1) Toxic substances.· **Kemler Number:** 60· **UN-Number:** 1710· **Packaging group:** III· **Label** 6.1· **Designation of goods:** 1710 TRICHLOROETHYLENE· **Maritime transport IMDG/GGVSea:**· **IMDG/GGVSea Class:** 6.1· **UN Number:** 1710· **Label** 6.1· **Packaging group:** III· **EMS Number:** F-A,S-A· **Correct technical name:** TRICHLOROETHYLENE· **Air transport ICAO-TI and IATA-DGR:**· **ICAO/IATA Class:** 6.1· **UNID Number:** 1710· **Label** 6.1· **Packaging group:** III

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Material Safety Data Sheet

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Trade name: *Trichloroethylene*

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· **Correct technical name:** TRICHLOROETHYLENE

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

T Toxic

· **Risk phrases:**

45 May cause cancer.

36/38 Irritating to eyes and skin.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

67 Vapours may cause drowsiness and dizziness.

· **Safety phrases:**

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

61 Avoid release to the environment. Refer to special instructions/safety data sheets.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
II	100.0

· **Water hazard class:** *Water danger class 3 (Assessment by list): extremely hazardous for water.*

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing data specification sheet:** *Quality Assurance Department*

· **Contact:** *Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500*

Printing date 03.12.2004

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1 Identification of substance:

- **Product details:**
- **Trade name:** *2-Propanol*
- **Article number:** 3401
- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.
 P.O.Box 1
 7400 AA Deventer
 The Netherlands

Tel: (+31) (0)570 - 687500
 Fax: (+31) (0)570 - 687574

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

2 Composition/Data on components:

- **Chemical characterization:**
- **CAS No. Designation:**
67-63-0 2-propanol
- **Identification number(s):**
- **EINECS Number:** 200-661-7
- **EC Number:** 603-117-00-0

3 Hazards identification

- **Hazard designation:**



Xi Irritant
F Highly flammable

- **Information pertaining to particular dangers for man and environment**
- R 11 Highly flammable.*
- R 36 Irritating to eyes.*
- R 67 Vapours may cause drowsiness and dizziness.*

4 First aid measures

- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
- **After swallowing**
Rinse out mouth
Seek medical treatment.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.

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Trade name: 2-Propanol

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- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.

7 Handling and storage

- **Handling**
- **Information for safe handling:** No special precautions necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
+ 15°C - +25°C

8 Exposure controls and personal protection

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

- **Components with critical values that require monitoring at the workplace:**

67-63-0 2-Propanol

OES	Short-term value: 1250 mg/m ³ , 500 ppm
	Long-term value: 999 mg/m ³ , 400 ppm

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not necessary if room is well-ventilated.
- **Protection of hands:** Protective gloves.
- **Material of gloves**
Nitrile rubber, NBR
Butyl rubber, BR
PVC gloves
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

Form:	Fluid
Colour:	Clear
Smell:	Alcohol-like

- **Change in condition**
Melting point/Melting range: -89.5°C

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Trade name: 2-Propanol

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- **Boiling point/Boiling range:** 82°C
- **Flash point:** 12°C
- **Ignition temperature:** 425°C
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/steam mixtures is possible.
- **Critical values for explosion:**
 - **Lower:** 2 Vol %
 - **Upper:** 12 Vol %
- **Steam pressure at 20°C:** 48 hPa
- **Density at 20°C:** 0.785 g/cm³
- **Solubility in / Miscibility with**
 - **Water at 20°C:** 1.000 g/l
 - **pH-value (- g/l) :** neutral
- **Viscosity:**
 - **dynamic at 20°C:** 2.43 mPas

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions:** Violent reaction with air and oxidizing agents
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

Oral	LD50	5840 mg/kg (rat)
Dermal	LD50	13400 mg/kg (rat)
	LC50/72h	30 mg/l (rat)

- **Primary irritant effect:**
 - **on the skin:** Irritant
 - **on the eye:** irritation
- **Sensitization:** No sensitizing effect known.

12 Ecological information:

- **General notes:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

13 Disposal considerations

- **Product:**
- **Recommendation**
 - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

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Trade name: 2-Propanol

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· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

· **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

- **ADR/RID-GGVS/E Class:** 3 (F1) Flammable liquids.
- **Kemler Number:** 33
- **UN-Number:** 1219
- **Packaging group:** II
- **Label:** 3
- **Designation of goods:** 1219 ISOPROPANOL (ISOPROPYL ALCOHOL)

· **Maritime transport IMDG/GGVSea:**

- **IMDG/GGVSea Class:** 3
- **UN Number:** 1219
- **Label:** 3
- **Packaging group:** II
- **EMS Number:** F-E,S-D
- **Correct technical name:** ISOPROPANOL (ISOPROPYL ALCOHOL)

· **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** 3
- **UN/ID Number:** 1219
- **Label:** 3
- **Packaging group:** II
- **Correct technical name:** ISOPROPANOL (ISOPROPYL ALCOHOL)

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

Xi Irritant
F Highly flammable

· **Risk phrases:**

11 Highly flammable.
36 Irritating to eyes.

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Trade name: 2-Propanol

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67 Vapours may cause drowsiness and dizziness.

· **Safety phrases:**

7 Keep container tightly closed.

16 Keep away from sources of ignition - No smoking.

24/25 Avoid contact with skin and eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
III	100.0

· **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing data specification sheet:** Quality Assurance Department

· **Contact:** Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500

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Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

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1 Identification of substance:

- **Product details:**

- **Trade name:** methanol

- **Article number:** 5370

- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.

P.O.Box 1

7400 AA Deventer

The Netherlands

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

Tel: (+31) (0)570 - 687500

Fax: (+31) (0)570 - 687574

2 Composition/Data on components:

- **Chemical characterization:**

- **CAS No. Designation:**

67-56-1 methanol

- **Identification number(s):**

- **EINECS Number:** 200-659-6

- **EC Number:** 603-001-00-X

3 Hazards identification

- **Hazard designation:**



T Toxic

F Highly flammable

- **Information pertaining to particular dangers for man and environment**

R 11 Highly flammable.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

4 First aid measures

- **General information**

Instantly remove any clothing soiled by the product.

Remove breathing apparatus only after soiled clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness bring patient into stable side position for transport.

- **After skin contact** Instantly wash with water and soap and rinse thoroughly.

- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

- **After swallowing**

Induce vomiting and call for medical help.

Do not induce vomiting; instantly call for medical help.

5 Fire fighting measures

- **Suitable extinguishing agents**

CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

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Trade name: *methanol*

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· **Protective equipment:** Put on breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Prevent material from reaching sewage system, holes and cellars.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Open and handle container with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep breathing equipment ready.
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
+ 15°C - +25°C
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

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

- **Components with critical values that require monitoring at the workplace:**

67-56-1 methanol

OES	Short-term value: 333 mg/m ³ , 250 ppm
	Long-term value: 266 mg/m ³ , 200 ppm
	Sk, ILV

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves:** Butyl rubber, BR

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Trade name: methanol

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- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· General Information

Form:	Liquid
Colour:	Colourless
Smell:	Alcohol-like

· Change in condition

Melting point/Melting range:	-98°C
Boiling point/Boiling range:	64.7°C
Flash point:	11°C
Ignition temperature:	455°C
Danger of explosion:	Product is not explosive. However, formation of explosive air/steam mixtures is possible.
Critical values for explosion:	
Lower:	5.5 Vol %
Upper:	44 Vol %

Steam pressure at 20°C:	128 hPa
Density at 20°C	0.79 g/cm ³
Solubility in / Miscibility with	
Water:	Fully miscible
Segregation coefficient (n-octanol/water):	-0.7 log POW

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions** Reacts with oxidizing agents
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

Oral	LD50	5628 mg/kg (rat)
	LDLo	143 mg/kg (Human)

· Primary irritant effect:

- **on the skin:** redness
- **on the eye:** redness
- **Sensitization:** No sensitizing effect known.

12 Ecological information:

- **Behaviour in environmental systems:**
- **Other information** log P o/w -0.74

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Trade name: methanol

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· **Ecotoxic effects:**· **Aquatic toxicity:**

EC5 / 16h	6600 mg/l (<i>Pseudomonas putida</i> .)
EC5 / 72h	>10000 mg/l (<i>Entosiphon sulcatum</i>)
EC50/48h	>10000 mg/l (<i>daphnia magna</i>)
IC5 / 8 d	8000 mg/l ((alg) <i>Scenedesmus quadricauda</i>)

· **General notes:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

13 Disposal considerations

· **Product:**· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

· **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**· **ADR/RID-GGVS/E Class:** 3 (FT1) Flammable liquids.· **Kemler Number:** 336· **UN-Number:** 1230· **Packaging group:** II· **Label:** 3+6.1· **Designation of goods:** 1230 METHANOL· **Maritime transport IMDG/GGVSea:**· **IMDG/GGVSea Class:** 3· **UN Number:** 1230· **Label:** 3+6.1· **Packaging group:** II· **EMS Number:** F-E,S-D· **Correct technical name:** METHANOL· **Air transport ICAO-TI and IATA-DGR:**· **ICAO/IATA Class:** 3· **UN/ID Number:** 1230

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Material Safety Data Sheet

According to 2001/58/EC

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Trade name: **methanol**

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- **Label** 3+6.1
- **Packaging group:** II
- **Correct technical name:** METHANOL

* 15 Regulatory information

- **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

- **Code letter and hazard designation of product:**

*T Toxic
F Highly flammable*

- **Risk phrases:**

*H1 Highly flammable.
23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.*

- **Safety phrases:**

*1/2 Keep locked up and out of the reach of children.
7 Keep container tightly closed.
16 Keep away from sources of ignition - No smoking.
36/37 Wear suitable protective clothing and gloves.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).*

- **National regulations**

- **Technical instructions (air):**

Class	Share in %
I	100.0

- **Water hazard class:** *Water hazard class 1 (Assessment by list): slightly hazardous for water.*

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing data specification sheet:** *Quality Assurance Department*
- **Contact:** *Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500*

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

1 Identification of substance:

- **Product details:**
- **Trade name:** Hydrogen peroxide in solution 30%
- **Article number:** 2200
- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.
 P.O.Box 1
 7400 AA Deventer
 The Netherlands


Tel: (+31) (0)570 - 687500
 Fax: (+31) (0)570 - 687574

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with harmless additions.

· Dangerous components:

CAS: 7722-84-1	Hydrogen peroxide >60%	 C, O; R 8-34	25-50%
EINECS: 231-765-0			

3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**
R 34 Causes burns.
- **Classification system**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact**
Seek medical treatment.
Instantly rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing** Seek medical treatment.

5 Fire fighting measures

- **Suitable extinguishing agents** Water
- **For safety reasons unsuitable extinguishing agents**
Carbon dioxide
Foam.
Extinguishing foam.

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Material Safety Data Sheet

According to 2001/58/EC

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Trade name: Hydrogen peroxide in solution 30%

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· **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Prevent material from reaching sewage system, holes and cellars.
- **Measures for cleaning/collecting:** Dilute with much water.

7 Handling and storage

- **Handling**
- **Information for safe handling:** No special precautions necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**
 - Store away from reducing agents.
 - Store away from flammable substances.
- **Further information about storage conditions:**
 - Store in a cool place.
 - + 15°C - +25°C
 - Store in the dark.
 - Keep container tightly sealed.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with critical values that require monitoring at the workplace:**

7722-84-1 Hydrogen peroxide >60%	
OES	Short-term value: 2.8 mg/m ³ , 2 ppm
	Long-term value: 1.4 mg/m ³ , 1 ppm
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Instantly remove any soiled and impregnated garments.
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

Form:	Fluid
Colour:	Colourless

(Contd. on page 3)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrogen peroxide in solution 30%

(Contd. of page 2)

Smell:	Odourless
· Change in condition	
Melting point/Melting range:	-26°C
Boiling point/Boiling range:	100°C
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Steam pressure at 20°C:	23.0 hPa
· Density at 20°C	1.135 g/cm ³
· Solubility in / Miscibility with	
Water:	Fully miscible
· Solvent content:	
Organic solvents:	0.0 %
Water:	70.0 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions**
 - Reacts with acids, alkalis and oxidizing agents
 - Reacts with alcohols
 - Reacts with fats and oils
 - Reacts with reducing agents
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Corrosive
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:** The product is easily biodegradable.
- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

GB

(Contd. on page 4)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrogen peroxide in solution 30%

(Contd. of page 3)

13 Disposal considerations

- **Product:**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**



- **ADR/RID-GGVS/E Class:** 5.1 (OC1) Oxidizing substances.
- **Kemler Number:** 58
- **UN-Number:** 2014
- **Packaging group:** II
- **Label:** 5.1+8
- **Designation of goods:** 2014 HYDROGEN PEROXIDE, AQUEOUS SOLUTION

- **Maritime transport IMDG/GGVSea:**



- **IMDG/GGVSea Class:** 5.1
- **UN Number:** 2014
- **Label:** 5.1+8
- **Packaging group:** II
- **EMS Number:** F-H,S-Q
- **Marine pollutant:** No
- **Correct technical name:** HYDROGEN PEROXIDE, AQUEOUS SOLUTION

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** 5.1
- **Packaging group:** II

15 Regulatory information

- **Designation according to EC guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)
- **Code letter and hazard designation of product:**
C Corrosive
- **Hazard-determining components of labelling:**
Hydrogen peroxide >60%
- **Risk phrases:**
34 Causes burns.

(Contd. on page 5)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrogen peroxide in solution 30%

(Contd. of page 4)

· Safety phrases:

- 3 Keep in a cool place.
- 28 After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer).
- 36/39 Wear suitable protective clothing and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

· National regulations

- Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R phrases

- 34 Causes burns.
- 8 Contact with combustible material may cause fire.

· Department issuing data specification sheet: Quality Assurance Department

· Contact: Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500

GB

Printing date 03.12.2004

Reviewed on 03.12.2004

1 Identification of substance:

- **Product details:**

- **Trade name:** Ammonium Hydroxide

- **Article number:** 6005

- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.

P.O.Box 1

7400 AA Deventer

The Netherlands

Tel: (+31) (0)570 - 687500

Fax: (+31) (0)570 - 687574

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

2 Composition/Data on components:

- **Chemical characterization:**

- **CAS No. Designation:**

1336-21-6 Ammonium Hydroxide

- **Identification number(s):**

- **EINECS Number:** 215-647-6

- **EC Number:** 007-001-01-2

3 Hazards identification

- **Hazard designation:**



C Corrosive

N Dangerous for the environment

- **Information pertaining to particular dangers for man and environment**

R 34 Causes burns.

R 50 Very toxic to aquatic organisms.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.

- **After inhalation**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness bring patient into stable side position for transport.

Symptoms: pungent, sore throat, coughing.

Effects: laboured breathing.

Delayed effects: lung oedema.

Professional attention needed; transport to a hospital.

- **After skin contact**

Instantly wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

Symptoms: corrosive, redness, pain.

Effects: serous skin burns.

Delayed effects: n.a.

Professional attention needed: send to a doctor.

- **After eye contact**

Rinse opened eye for several minutes under running water. Then consult doctor.

Symptoms: corrosive, redness, pain.

Effects: blurred vision.

Delayed effects: n.a.

Professional attention needed: transport to a doctor.

(Contd. on page 2)

GB

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Ammonium Hydroxide

(Contd. of page 1)

- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; instantly call for medical help.
Symptoms: corrosive, sore throat, abdominal pain.
Effects: nausea.
Delayed effects: n.a.
Professional attention needed: transport to a hospital immediately.
- **Information for doctor**
- **The following symptoms may occur:**
Inhalation of vapor and/or fumes may cause shortness of breath
(lung oedema)

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Protective equipment:** Wear self-contained breathing apparatus.

* 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
Use neutralizing agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

* 7 Handling and storage

- **Handling**
- **Information for safe handling:** Carry out filling operations only at sites with extractors available.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Do not store together with acids.
- **Further information about storage conditions:**
Store in a cool place.
+ 15°C - +25°C
Keep container tightly sealed.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with critical values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.

(Contd. on page 3)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Ammonium Hydroxide

(Contd. of page 2)

- **Breathing equipment:**
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves**
Butyl rubber, BR
PVC gloves
- **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 protection:** Safety glasses

9 Physical and chemical properties:

· General Information

Form:	Liquid
Colour:	Colourless
Smell:	Like ammoniac

· Change in condition

- | | |
|---|---------------------------|
| Melting point/Melting range: | n/a °C |
| Boiling point/Boiling range: | n/a °C |
| Flash point: | Not applicable |
| Danger of explosion: | Product is not explosive. |
| Density at 20°C | 0.89 g/cm ³ |
| Solubility in / Miscibility with | |
| Water at 20°C: | 571 g/l |

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions** Reacts with acids
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

Oral	LD50	350 mg/kg (rat)
	LC50/72h	2000 mg/l (rat)

· Primary irritant effect:

- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

GB
(Contd. on page 4)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Ammonium Hydroxide

(Contd. of page 3)

12 Ecological information:

- **Ecotoxicological effects:**

- **Acquatic toxicity:**

EC50/48h	1.16 mg/l (<i>Daphnia pulicaria</i>) 24 mg/l (<i>daphnia magna</i>)
LC50/96h	0.53 mg/l (fish) <i>Onchorhynchus mykiss</i>

- **General notes:**

Water hazard class 2 (Assessment by list): hazardous for water.

Do not allow product to reach ground water, water bodies or sewage system.

13 Disposal considerations

- **Product:**

- **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**



- **ADR/RID-GGVS/E Class:** 8 (C5) Corrosive substances.

- **Kemler Number:** 80

- **UN-Number:** 2672

- **Packaging group:** III

- **Label:** 8

- **Designation of goods:** 2672 AMMONIA SOLUTION

- **Maritime transport IMDG/GGVSea:**



- **IMDG/GGVSea Class:** 8

- **UN Number:** 2672

- **Label:** 8

- **Packaging group:** III

- **EMS Number:** F-A,S-B

- **Correct technical name:** AMMONIA SOLUTION

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** 8

- **UN/ID Number:** 2672

- **Packaging group:** III

(Contd. on page 5)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Ammonium Hydroxide

(Contd. of page 4)

· **Correct technical name:** AMMONIA SOLUTION

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

C Corrosive

N Dangerous for the environment

· **Risk phrases:**

34 Causes burns.

50 Very toxic to aquatic organisms.

· **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

61 Avoid release to the environment. Refer to special instructions/safety data sheets.

· **National regulations**

· **Water hazard class:** *Water hazard class 2 (Assessment by list): hazardous for water.*

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing data specification sheet:** *Quality Assurance Department*

· **Contact:** *Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500*

1 Identification of substance:

- **Product details:**

- **Trade name:** Hydrochloric Acid 37%

- **Article number:** 9600

- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.

P.O.Box 1

7400 AA Deventer

The Netherlands

Tel: (+31) (0)570 - 687500

Fax: (+31) (0)570 - 687574

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

2 Composition/Data on components:

- **Chemical characterization:**

- **CAS No. Designation:**

7647-01-0 hydrochloric acid 37%

- **Identification number(s):**

- **EINECS Number:** 231-595-7

- **EC Number:** 017-002-01-X

3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**

R 34 Causes burns.

R 37 Irritating to respiratory system.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.

- **After inhalation** Supply fresh air or oxygen; call for doctor.

- **After skin contact** Wash with polyethylene glycol 400 and then rinse with copious amounts of water.

- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

- **After swallowing**

Drink copious amounts of water and provide fresh air. Instantly call for doctor.

Do not induce vomiting; instantly call for medical help.

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

- **Special hazards caused by the material, its products of combustion or flue gases:** Hydrogen chloride (HCl)

- **Protective equipment:** Wear self-contained breathing apparatus.

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrochloric Acid 37%

(Contd. of page 1)

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
 - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 - Use neutralizing agent.
 - Dispose of contaminated material as waste according to item 13.
 - Ensure adequate ventilation.

7 Handling and storage

- **Handling**
 - **Information for safe handling:** Work only in fume cupboard.
 - **Information about protection against explosions and fires:** No special measures required.
- **Storage**
 - **Requirements to be met by storerooms and containers:** No special requirements.
 - **Information about storage in one common storage facility:** Do not store together with alkalis (caustic solutions).
 - **Further information about storage conditions:** Store in a cool place.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with critical values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
 - **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Instantly remove any soiled and impregnated garments.
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
 - **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
 - **Protection of hands:** Protective gloves.
 - **Material of gloves**
 - Butyl rubber, BR
 - PVC gloves
 - **Eye protection:** Safety glasses
 - **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

Form:	Fluid
Colour:	Colourless
Smell:	Pungent
- **Change in condition**
 - Melting point/Melting range:** Not determined
 - Boiling point/Boiling range:** 50°C
 - **Flash point:** Not applicable

(Contd. on page 3)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrochloric Acid 37%

(Contd. of page 2)

- | | |
|---|------------------------------|
| · Self-inflammability: | Product is not selfigniting. |
| · Danger of explosion: | Product is not explosive. |
| · Steam pressure at 20°C: | 23 hPa |
| · Density at 20°C | 1.19 g/cm ³ |
| · Solubility in / Miscibility with | |
| Water: | Fully miscible |
| · pH-value at 20°C: | < 0.1 |
| · Organic solvents: | 0.0 % |
| · Water: | 63.0 % |

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**

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

Inhalative	LC50/1h	3124 ppm (rat)
------------	---------	----------------

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information:

- **Ecotoxic effects:**

- **Aquatic toxicity:**

LC50	862 mg/l (Leuciscus idus)
------	---------------------------

- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

13 Disposal considerations

- **Product:**
- **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 4)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrochloric Acid 37%

(Contd. of page 3)

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 14 Transport information

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**



- **ADR/RID-GGVS/E Class:** 8 (C1) Corrosive substances.
- **Kemler Number:** 80
- **UN-Number:** 1789
- **Packaging group:** II
- **Label:** 8
- **Designation of goods:** 1789 HYDROCHLORIC ACID

- **Maritime transport IMDG/GGVSea:**



- **IMDG/GGVSea Class:** 8
- **UN Number:** 1789
- **Label:** 8
- **Packaging group:** II
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** HYDROCHLORIC ACID

- **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 8
- **UN/ID Number:** 1789
- **Label:** 8
- **Packaging group:** II
- **Correct technical name:** HYDROCHLORIC ACID

* 15 Regulatory information

- **Designation according to EC guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)
- **Code letter and hazard designation of product:**
C Corrosive
- **Risk phrases:**
34 Causes burns.

(Contd. on page 5)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrochloric Acid 37%

(Contd. of page 4)

*37 Irritating to respiratory system.***· Safety phrases:***26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).***· National regulations****· Water hazard class:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.***16 Other information:**

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing data specification sheet: *Quality Assurance Department***· Contact:** *Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500*

GB

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

1 Identification of substance:

- **Product details:**

- **Trade name:** Hydrofluoric acid 40%

- **Article number:** 30254

- **Manufacturer/Supplier:**

Mallinckrodt Baker B.V.

P.O.Box 1

7400 AA Deventer

The Netherlands

- **Informing department:** Mallinckrodt Baker Sales Office Tel.: (31) (0) 570 687500

Tel: (+31) (0)570 - 687500

Fax: (+31) (0)570 - 687574

2 Composition/Data on components:

- **Chemical characterization**

- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 7664-39-3

hydrofluoric acid



C; R 26/27/28-35

25-50%

EINECS: 231-634-8

3 Hazards identification

- **Hazard designation:**



T+ Very toxic

C Corrosive

- **Information pertaining to particular dangers for man and environment**

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

R 35 Causes severe burns.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

First-aid personnel: ensure self-protection!

- **General information** Instantly remove any clothing soiled by the product.

- **After inhalation** Supply fresh air or oxygen; call for doctor.

- **After skin contact**

Instantly rinse with water.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

- **After swallowing**

Do not induce vomiting; instantly call for medical help.

Drink copious amounts of water and provide fresh air. Instantly call for doctor.

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

(Contd. on page 2)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrofluoric acid 40%

(Contd. of page 1)

· **Protective equipment:** Put on breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Prevent material from reaching sewage system, holes and cellars.
- **Measures for cleaning/collecting:**
 - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 - Use neutralizing agent.
 - Dispose of contaminated material as waste according to item 13.
 - Ensure adequate ventilation.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Ensure good ventilation/exhaustion at the workplace.
 - Open and handle container with care.
- **Information about protection against explosions and fires:** Keep breathing equipment ready.
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:** Keep container tightly sealed.

8 Exposure controls and personal protection

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

- **Components with critical values that require monitoring at the workplace:**

7664-39-3 hydrofluoric acid

OES	Short-term value: 2.5 mg/m ³ , 3 ppm
	Long-term value: 1.5 mg/m ³ , 1.8 ppm
	as F; New, IOELV

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Instantly remove any soiled and impregnated garments.
 - Wash hands during breaks and at the end of the work.
 - Store protective clothing separately.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves:** Butyl rubber, BR
- **Eye protection:** Tightly sealed safety glasses.

GB

(Contd. on page 3)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrofluoric acid 40%

(Contd. of page 2)

9 Physical and chemical properties:

· General Information

Form: Fluid
Colour: Colourless
Smell: Pungent

· Change in condition

Melting point/Melting range: Not determined
Boiling point/Boiling range: 100°C
Flash point: Not applicable
Self-inflammability: Product is not selfigniting.
Danger of explosion: Product is not explosive.

Steam pressure at 20°C: 40 hPa
Density at 20°C 1.068 g/cm³
Solubility in / Miscibility with Water: Fully miscible

· Solvent content:

Organic solvents: 0.0 %
Water: 60.0 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions**
 Reacts with various metals
 Attacks materials containing glass and silicate
- **Dangerous products of composition:** No dangerous decomposition products known

11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7664-39-3 hydrofluoric acid

Inhalative	LC50/1h	342 ppm (mouse)
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· Primary irritant effect:

- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.

· Sensitization:

No sensitizing effect known.

· Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Corrosive

Very toxic

Danger by skin resorption.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

GB

(Contd. on page 4)

Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: Hydrofluoric acid 40%

(Contd. of page 3)

12 Ecological information:

- **General notes:**

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

13 Disposal considerations

- **Product:**

- **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**



- **ADR/RID-GGVS/E Class:** 8 (CT1) Corrosive substances.

- **Kemler Number:** 86

- **UN-Number:** 1790

- **Packaging group:** II

- **Label:** 8+6.1

- **Designation of goods:** 1790 HYDROFLUORIC ACID

- **Maritime transport IMDG/GGVSea:**



- **IMDG/GGVSea Class:** 8

- **UN Number:** 1790

- **Label:** 8

- **Packaging group:** II

- **EMS Number:** F-A,S-B

- **Marine pollutant:** No

- **Correct technical name:** HYDROFLUORIC ACID

- **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 8

- **UN/ID Number:** 1790

- **Label:** 8

- **Packaging group:** II

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Material Safety Data Sheet

According to 2001/58/EC

Printing date 03.12.2004

Reviewed on 03.12.2004

Trade name: **Hydrofluoric acid 40%**

(Contd. of page 4)

· **Correct technical name:** HYDROFLUORIC ACID

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

T+ Very toxic
C Corrosive

· **Hazard-determining components of labelling:**

hydrofluoric acid

· **Risk phrases:**

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
35 Causes severe burns.

· **Safety phrases:**

4 Keep away from living quarters.
7/9 Keep container tightly closed and in a well-ventilated place.
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
28 After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer).
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

· **National regulations**

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R phrases**

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
35 Causes severe burns.

· **Department issuing data specification sheet:** Quality Assurance Department

· **Contact:** Mallinckrodt Baker B.V. Deventer Holland Tel. (+31) 570 - 687500