

SAFETY DATA SHEET

Based on Directive 91/155/EEC et seq. of the Commission of the European Communities

DNA PRECIPITATION SOLUTION 2

1. Identification of the substance/preparation and the company

1.1 Identification of the substance or preparation:

Synonyms: -

CAS no. : N.A. EC index no. : 603-002-00-5 (Ethanol)
EINECS no. : N.A. NFPA code : 0-3-0(*)
RTECS no. : N.A. Molecular weight : N.A.
Formula : N.A.

1.2 Company/undertaking identification:

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2. Composition/information on ingredients

Hazardous ingredients	CAS no.	Conc. in %	Hazard symbol	Risks (R-phrases)
Ethanol	64-17-5	> 20	F	11

3. Hazards identification

- Highly flammable

4. First aid measures

4.1 Eye contact:

- Rinse immediately with plenty of water for 15 minutes
- Do not apply neutralizing agents
- Consult a doctor/medical service if irritation persists

4.2 Skin contact:

- Wash with lots of water and soap
- Remove clothing while washing
- Consult a doctor/medical service if irritation persists

4.3 After inhalation:

- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration
- Consult a doctor/medical service if breathing problems develop

4.4 After ingestion:

- Never give water to an unconscious person
- Do not allow vomiting
- Consult a doctor/medical service if you feel unwell

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5. Fire-fighting measures

5.1 Suitable extinguishing media:

- Water spray
- Polyvalent foam
- BC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:

- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:

- Gas/vapour spreads at floor level: ignition hazard
- Gas/vapour flammable with air within explosion limits
- On burning: release of carbon monoxide - carbon dioxide

5.4 Instructions:

- Cool tanks/drums with water spray/remove them into safety
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it
- Do not move the load if exposed to heat

5.5 Special protective equipment for firefighters:

- Heat/fire exposure: compressed air/oxygen apparatus
- Large spills/in enclosed spaces: compressed air apparatus

6. Accidental release measures

6.1 Personal protection: see 8.3

6.2 Environmental precautions:

- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Contain leaking substance, pump over in suitable containers
- Plug the leak, cut off the supply
- Dam up the liquid spill
- Try to reduce evaporation

6.3 Clean-up:

- Damaged/cooled tanks must be emptied
- Do not use compressed air for pumping over spills
- Take up liquid spill into a non combustible material e.g.: sand/earth
- Scoop absorbed substance into closing containers
- Carefully collect the spill/leftovers
- Clean contaminated surfaces with an excess of water

7. Handling and storage

7.1 Handling:

- Observe normal hygiene standards
- Use spark-/explosionproof appliances and lighting system
- Take precautions against electrostatic charges
- Handle uncleaned empty containers as full ones
- Do not discharge the waste into the drain

7.2 Storage:

- Keep container tightly closed
- Ventilation at floor level
- Provide for a tub to collect spills
- Keep only in the original container
- Keep away from: heat sources, ignition sources, oxidizing agents

Storage temperature: N.D.

7.3 Materials for packaging:

- suitable : stainless steel, aluminium, synthetic material
- to avoid : no data available

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8. Exposure controls/Personal protection

8.1 Recommended engineering controls:

- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

Sampling methods:

Ethyl Alcohol (Ethanol)(Alcohols I)	NIOSH 1400
Ethyl Alcohol (Ethanol)	OSHA 7
Ethyl Alcohol (Ethanol)	OSHA 100

8.2 Exposure limits:

Ethanol:				
TLV-TWA	:	mg/m ³	1000	ppm
TLV-STEL	:	mg/m ³	-	ppm
OES-LTEL	:	mg/m ³	1000	ppm
OES-STEL	:	mg/m ³	-	ppm
MAK	:	mg/m ³	500	ppm
MAC-TGG 8h	:	mg/m ³		
MAC-TGG 15 min.	:	mg/m ³		
VME-8h	:	mg/m ³	1000	ppm
VLE-15 min.	:	mg/m ³	5000	ppm
GWBB-8h	:	mg/m ³	1000	ppm
GWK-15 min.	:	mg/m ³	-	ppm

8.3 Personal protection:

eye protection:

- Protective goggles

hand protection:

- Gloves

suitable materials:

- Butyl rubber
- Neoprene
- Viton

skin protection:

- Protective clothing

respiratory protection:

- Gas mask with filter type A
- High vapour concentration: compressed air/oxygen apparatus

9. Physical and chemical properties

9.1 Appearance (at 20°C)	:	Liquid	
9.2 Odour	:	Alcohol	
9.3 Colour	:	Colourless	
9.4 pH value	:	N.D.	
9.5 Boiling point/boiling range	:	N.D.	°C
9.6 Melting point/melting range	:	N.D.	°C
9.7 Flashpoint	:	< 21	°C (Ethanol = 13°C)
9.8 Auto-ignition point	:	363	°C (Ethanol)
9.9 Explosion limits	:	3.3/19.0	vol% (Ethanol)
9.10 Vapour pressure (at 20°C)	:	59	hPa (Ethanol)
9.11 Rel. vapour density (at 20°C)	:	1.6 (Ethanol)	
9.12 Water solubility	:	Soluble	
9.13 Soluble in	:	No data available	
9.14 Relative vapour density	:	N.D.	
9.15 Saturation concentration	:	N.D.	g/m ³
9.16 Viscosity	:	N.D.	Pa.s

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10. Stability and reactivity

10.1 Stability:

- Stable under normal conditions

10.2 Reactivity/Hazardous decomposition products:

- On burning: release of carbon monoxide - carbon dioxide
- Reacts with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion

10.3 Conditions/materials to avoid:

- Keep away from: heat sources, ignition sources, oxidizing agents

11. Toxicological information

11.1 Acute toxicity:

Ethanol		
LD50 oral rat	: 7060	mg/kg
LD50 dermal rat	: N.D.	mg/kg
LD50 dermal rabbit	: > 16000	mg/kg
LC50 inhalation rat	: > 20	mg/l/4 h

11.2 Chronic toxicity:

Ethanol	
EC carc. cat.	: not listed
EC muta. cat.	: not listed
EC repr. cat.	: not listed

Carcinogenicity (TLV)	: A4
Carcinogenicity (MAC)	: not listed
Carcinogenicity (VME)	: not listed
Carcinogenicity (GWBB)	: not listed

Carcinogenicity (MAK)	: 5
Mutagenicity (MAK)	: 2
Teratogenicity (MAK)	: C

IARC classification : not listed

Obligatory medical control (ARAB-RGPT Belgium Art.124):
group: I number: 23.1

11.3 Routes of exposure: ingestion, inhalation, eyes and skin

11.4 Acute effects/symptoms:

- Produces effects on the nervous system

AFTER INHALATION

EXPOSURE TO HIGH CONCENTRATIONS:

- CNS depression
- Dizziness
- Headache
- Nausea
- Drunkenness
- Respiratory difficulties

AFTER INGESTION

AFTER ABSORPTION OF HIGH QUANTITIES:

- Risk of aspiration pneumonia
- Body temperature fall
- Nausea
- Vomiting
- Gastrointestinal complaints
- Disturbances of heart rate
- Headache
- Dizziness
- Drunkenness
- Dilated pupils
- Cramps/uncontrolled muscular contractions

AFTER SKIN CONTACT

- Slight irritation

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AFTER EYE CONTACT

- Redness of the eye tissue
- Lacrimation

ON CONTINUOUS EXPOSURE/CONTACT:

- Irritation of the eye tissue

11.5 Chronic effects:

- May have an effect on fertility
- Contains a substance (ethanol) which is possibly mutagenic

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:

- Skin rash/inflammation
- Enlargement/affection of the liver
- Diarrhoea

12. Ecological information

12.1 Mobility:

- Volatile organic compounds (VOC): > 20%
- Soluble in water

12.2 Biodegradation:

- BOD₅ : N.D. % ThOD
- water : No data available
- soil : T ½: N.D. days

12.3 Bioaccumulation:

- log P_{ow} : N.D.
- BCF : N.D.

12.4 Aquatic toxicity:

Ethanol:

- LC50 (96 h) : 13000 mg/l (SALMO GAIRDNERI/ONCORHYNCHUS MYKISS)
- EC50 (48 h) : 9300 mg/l (DAPHNIA MAGNA)
- EC50 (72 h) : 5000 mg/l (ALGAE)

12.5 Other information:

- WGK: 1 (Classification based on the components as per Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- Effect on the ozone layer : no data available
- Greenhouse effect : no data available
- Effect on waste water purification : no data available

13. Waste disposal considerations

13.1 Provisions relating to waste:

- EWC code (91/689/EC): 07 01 04 (Ethanol)
- Waste material code (Flanders): 015
- Hazardous waste (91/689/EEC)

13.2 Disposal methods:

- Remove to an authorized plant for the destruction, neutralization and elimination of hazardous waste
- Do not discharge into surface water

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14. Transport information

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1170

- 14.1 Proper shipping name: UN 1170, Ethanol solution
- 14.2 Transport by road/rail (ADR/RID): class 3, 3b
Danger code: 33
Danger labels on tanks : 3
Danger labels on packages : 3
- 14.3 Substance identification number (UN number): 1170
Packing: II
- 14.4 Maritime transport (IMDG code): class 3.2 p. 3219
EMS : 3-06
MFAG : 305
Marine pollutant : -
- 14.5 Inland navigation (ADNR): class 3, 3b)
- 14.6 Air freight (ICAO) : class 3
Instruction "passenger" : 305/Y305
Instruction "cargo" : 307
- 14.7 Other information: none

15. Regulatory information

Classification according to directives 67/548/EEC and 1999/45/EC



Highly flammable

- R11 : Highly flammable
- S(02) : (Keep out of reach of children)
S07 : Keep container tightly closed
S16 : Keep away from sources of ignition - No smoking

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16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
* = INTERNAL CLASSIFICATION

Exposure limits:

TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2000
TRK : Technische Richtkonzentrationen - Germany 2000
MAC : Maximale aanvaarde concentratie - The Netherlands 2000
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

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