

E.C. Material Safety Data Sheet

according to 93/112 EEC and 91/155 EEC
for the liquid

Tradename:

Demotec 90 Demotec 95

Demotec®

State: 4 dated 18.08.03
Print date: 18.08.03
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1. Identification of the substance/preparation and of the company

Information on the product

Trade name:

Demotec 90, Demotec 95

Purpose: Liquid component of the 2-component-acrylic-system, serving to treat bovine lameness.

Information on the manufacturer

Demotec
Siegfried Demel
Brentanostraße 21
D-61130 Nidderau
Tel.: 0049 (0) 6187 - 21200

Emergency number in the case of poisoning

(in Germany, Berlin)
Giftnotrufzentrale-Berlin
Phone: 0049 (0) 30 - 19240

2. Composition/information on ingredients

Chemical characterization

Methacrylic acid methyl ester or methyl methacrylate (containing activator).

Hazardous ingredients

Methyl methacrylate

Concentration 60 to 100 %
CAS number 80-62-6
Index number 607-035-00-6
EINECS number 201-297-1
Hazard symbols Xi, F
R-phrases 11-36/37/38-43

N,N-dimethyl-p-toluidine

Concentration > 1 < 5 %
CAS number 99-97-8
EU number 612-056-00-9
EINECS number 202-805-4
Hazard symbols T
R-phrases 23/24/25-33-52/53

3. Hazards identification

Highly flammable. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.

4. First aid measures

General information

Remove soiled, soaked clothing immediately. Medical treatment is necessary if symptoms occur which are obviously caused by skin or eye contact with the product or by inhalation of its vapours.

After inhalation

Remove the casualty into fresh air and keep him calm.

After contact with skin

In case of contact with skin clean thoroughly with soap and water. A doctor must be consulted in case of skin irritation.

After contact with eyes

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

After swallowing

Summon a doctor immediately.

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5. Fire-fighting measures

Suitable extinguishing media

Water spray jet, foam, dry powder, carbon dioxide.

Unsuitable extinguishing media for safety reasons

Full water jet.

Special protective equipment for fire fighting

Use self-contained breathing apparatus. (Insulating apparatus).

6. Accidental related measures

Precautionary measures related to humans

Provide adequate ventilation. Use personal protective clothing.

Environmental protective measures

Prevent product from getting into drains/surface water/groundwater.

Methods of cleaning/absorption

Larger quantities:

Remove mechanically (by pumping). Observe EX-protection.

Smaller quantities and/or residues:

Absorb with absorbent material (e.g. sand, diatomaceous earth, acid absorbent, universal absorbent or sawdust).

7. Handling and storage

Handling

Instructions on safe handling

Keep containers tightly closed. Ensure the area is well ventilated.

Information on fire and explosion protection

Keep away from sources of ignition - no smoking. For larger quantities take precautionary measures against static charges. In the event of fire, cool the endangered containers with water.

Requirements for storage areas and containers:

Storage temperature: +10 to + 25 °C.

For short periods: - 20 to + 30 °C

Keep only in the original container at a temperature not exceeding 25 °C Fill the container to approximately 90 % only because oxygen (air) is required for stabilisation. Keep out of direct sunlight. For large storage quantities or storage of large packages exceeding 5 kg / 5 l an explosion-proof installation is required.

Other

Should the liquid cool down to under 10 °C, some particular dissolved ingredients may crystallize and stick to the ground of the container. When heated up to room temperature the crystals will mix up with the solvent. Please shake the tightly closed container well. There is no danger of reducing the processing qualities.

8. Exposure control and personal protection

Components or products of decomposition according to point 10, with limit values related to the place of work and requiring monitoring.

MAK-value for

CAS number 80-62-6

Methyl methacrylate 210 mg/m³ 50 ml/m³

Top demarcation category 1

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8. Exposure control and personal protection (Continued)

Annotations/Notes/Observations

Sensitizing.

Y: No damage to harvests if MAK standards are complied with (TRGS 900).

Personal protective equipment

General protective measures

Do not inhale vapours. Avoid contact with eyes and skin.

Hygiene measures

Store work clothing separately. Remove soiled or soaked clothing immediately.

Follow the usual trade-determined standards of hygiene.

Respiratory protection

Breathing apparatus in case of insufficient ventilation. Short term: filter appliance, filter A.

Hand protection

Gloves consisting of butyle – rubber. Time of protection 300 min (EN 374).

As deviating conditions may occur in the daily practice, these figures can only be an aid of orientation on the choice of an appropriate chemical protective glove. Especially they do not substitute suitability tests made by the consumer.

General protective measures

Protective gloves should be changed regularly, especially after intense contact with the product. For every work place an appropriate glove – type has to be chosen.

Eye protection

Wear tightly fitting safety goggles.

Body protection

When handling larger quantities: Face protection, chemical-proof boots and apron.

9. Physical and chemical properties

Appearance

Form: liquid

Colour: colourless – clear to slightly yellow

odour: ester - like

Data relevant to security (data for the component methyl methacrylate)

Changes in physical state

Melting temperature	-	48,2 °C	
Initial boiling point	approx.	100,3 °C	(at 1013 hPa)
Flash Point		10 °C	(Method DIN 51755)
Ignition temperature		430 °C	(Method DIN 51794)
Self ignition		Not determined	
Lower explosion limit		2,1 % vol	
Upper explosion limit		12,5 % vol	
Vapour pressure		38,7 hPa	(at 20 °C)
Density		0,94 g/cm ³	(at 20 °C)
Relative vapour density related to air	>	1	(at 20 °C)
Solubility in water		15,9 g/l	(at 20 °C)
Fat solubility		Not determined	
Solubility (qualitative)		mixeable with most organic solvents	
pH-value		not applicable	

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9. Physical and chemical properties - Continued

n-octanol/Water distribution coefficient	log Pow	1,38	(measured, source literature)
viscosity dynamic	0,63	mPa.s	(at 20 °C, Method Brookfield)
Further information	None		

10. Stability and reactivity

Thermal decomposition

No decomposition when used as directed.

Hazardous reactions

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides, reducing substances, and/or heavy metal ions).

Hazardous decomposition products

None when used as directed.

11. Toxicological information

The following data refer to the component methyl methacrylate

Toxicity

Findings: Damage to the mucous membranes in nose, throat and lungs. Degeneration of the olfactory epithelium. (Application method inhalative, application interval 6 h/d, 5d/w, application period 2 a, species mouse, source literature).

Acute oral toxicity: (LD 50, OECD 401) > 5000 mg/kg
(Species rat, source literature)

Acute inhalation toxicity: (LC 50) 29,8 mg/l
(Length of exposure 4h, species rat, source literature)

Acute dermal toxicity: (LD 50) > 5000 mg/kg
(Species rabbit, source literature)

Skin irritation not irritating
(Length of exposure 24 h, Species rabbit, Method Occlusive, FDA 1959 Draize. Source literature).

Irritant effect on the eyes not irritating
(species rabbit eye, method Draize, Source literature).

Sensitization

In sensitization tests on guinea pigs with and without adjuvant, both positive and negative results were found. On humans various types of allergic reactions have been observed with varying incidence (symptoms: headache, eye irritations, skin affections). Source Literature.

Carcinogenicity

Not carcinogenic in inhalation and feeding studies carried out on rats, mice and dogs.

Chronic toxicity NOAEL 25 ppm

Findings: Damage to the mucous membranes in nose, throat and lungs at 400 ppm. Degeneration of the olfactory epithelium. (Application method inhalative, application interval 6 h/d, 5d/w, application period 2 a, 25 – 400 ppm, , species rat, source literature).

Chronic toxicity NOAEL 2000 ppm

Findings: No toxicological effects.

(Application method in drinking water, application interval 7 d/w, application period 2 a, 6-2000 ppm, species rat, source literature).

Mutagenity

Both positive and negative results in mutagenity / genotoxicity tests. No experimental indication regarding genocytivity in vivo existing (Source literature).

Total results: **No mutating effect** according to international criteria. (Source literature).

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11. Toxicological information - Continued

Reproduction toxicity / Teratogenity

In tests on animals there were no indications regarding reproduction toxicity observed (Source literature).

Carcinogenicity

Non-carcinogenic in inhalation and feeding studies carried out on rats, mice and dogs. (Source literature).

Further information on toxicology

No further toxicological data. Avoid contact with skin and eyes as well as inhalation of product vapours.

The following data refer to the component **N,N-dimethyl-p-toluidin**

Acute oral toxicity: (LD 50) 1650 mg/kg (species rat, source literature)

Acute inhalation toxicity: (LC 50) 1,5 mg/l (Time of exposure 4 h, species rat, source literature)

Acute dermal toxicity (LD50) > 2000 mg/kg
(Species rat, source literature).

Skin irritation Irritating

Irritant effect on the eyes: Irritating

Sensitisation: No effects known

Further indications

Under certain conditions nitrosamines may form with nitrosizing agents (e.g. nitrite, nitric oxides). These were found as cancer promoting in animal experiments.

12. Ecological information

Information on elimination (persistence and degradability)

The following data refer to the component **methyl methacrylate**

Biological decomposure easily biologically decomposeable, approx. 94 %
(Method OECD 301 C, duration of test 14 d, literature)

Ecotoxicological effect

Fish toxicity (LC50) > 79 mg/l
(Length of exposure 96 h, Species *Oncorhynchus mykiss*, rainbow trout, OECD 203, Source literature)

Daphnia toxicity (EC50) 69 mg/l
(Length of exposure 48 h, Species *daphnia magna*, OECD 202, Source Literature)
(NOEC *Daphnia magna*, OECD 202 part 2, period of flow 21d 37 mg/l, Source Literature)

Algae toxicity (EC3) 37 mg/l
(Species *scenedesmus quadricauda*, DIN 38412 part 9, 8 d, Source Literature)

Algae toxicity (EC50) 170 mg/l
(Length of exposure 96 h, Species *selenastrum capricornutum*, OECD 201, Source Literature)

Bacteria toxicity (EC0) 100 mg/l (Species *pseudomonas putida*)

The following data refer to the component **N,N-dimethyl-p-toluidin**

Aquatic toxicity ((LC 0) 100 mg/l
(Length of exposure 96 h, Species *Danio rerio* – zebra berbling)

Further information on ecology

Do not allow to enter soil, waterways or waste water.

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13. Disposal considerations

Product (components, powder and liquid)

European waste code (EWC):

07 02 99 Not hardened plastic-/resin remnants, - moulding compounds and components.

Recommendation

Must be brought to an authorized special waste incineration plant in accordance with the regulations on special waste following local regulations.

Processing deposits (hardened plastics from both components)

Waste code/waste name: 17 02 03

Other hardened plastic waste.

Recommendation:

Can be deposited or incinerated in a special refuse incineration plant together with household refuse in consideration of the refuse disposing instructions according to the local official instructions.

Contaminated packaging

Can be incinerated in accordance with the local official instructions.

Recommendation

Cleaned packing materials can be deposited in the local recycling containers.

Recommended cleaning agent

Ethylacetate

14. Transport information

Overland transport

ADR/RID/GGVS/GGVE

Class: 3 Flammable liquid material

Kemler figure: 39

UN number: 1247

Packaging group: II

Danger label: 3

Proper shipping name: Methyl methacrylate, monomer, stabilized UN number 1247

Inland waterways transport

ADNR

Class 3

UN number: 1247

Packaging group: II

Danger label: 3

Proper shipping name: Methyl methacrylate, monomer, stabilized UN number 1247

Shipment by sea

IMDG/GGVSea

Class 3

EmS 3-07

Marine pollutant Packed (+/0):0

Packaging group: II

Proper shipping name: Methyl methacrylate, monomer, stabilized UN number 1247

Air transport

ICAO/IATA

Class 3

Packaging group: II

Proper shipping name: Methyl methacrylate, monomer, stabilized UN number 1247

DOT: UN 1247 Methyl methacrylate, monomer, stabilized

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15. Regulatory information

Labelling in accordance with direction on hazardous materials (GefstoffV/EC)

requires labelling

Hazardous component(s) for labelling

contains

Methyl methacrylate

N,N-dimethyl-para-toluidine

Hazard symbols

Xn Noxious

F Highly flammable

R-phrases

11 Highly flammable.

20/21/22 Noxious in case of inhalation, swallowing and contact with skin.

33 Hazard of cumulative effect.

36/37/38 Irritating to eyes, respiratory system and skin.

43 May cause sensitization by skin contact.

S-phrases

9 Keep container in a well-ventilated place.

16 Keep away from sources of ignition — No smoking.

29 Do not empty into drains.

33 Take precautionary measures against static charges

24 Avoid contact with skin.

37 Wear adequate protective gloves

46 In case of swallowing seek immediately medical advice and show package or labelling.

National regulatory information

Classifying according to VbF Group A, Class I

Technical instruction air: Class II, para. 31.7- After coming into force of amendment 5.2.5

Peril to water classification: 1 (VwVwS, annexe 2)

Employment restrictions (see EU instruction 92/85/EEC)

- Observe protection of labour instructions regarding children and adolescents (Youth regulations law).
- Observe protection of labour instructions regarding expecting and nursing mothers (Maternity regulations law).

16. Other information

The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is noticeably exceeded, the product may polymerize with heat evolution.

Indications on sources

Relevant manuals and publications, toxicological and ecotoxicological studies of other producers. (SIAR, OECD-SIDS, RTK public files).

The details are based on the present knowledge we have achieved; they are intended as a description of the products safety requirements and not to be seen as a guarantee of certain product features.

Material Safety Data Sheet conforming to 91/155 EEC
for the powder

Demotec®

Trade name:

Demotec 90 • Demotec 95

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1. Identification of substance, preparation and company

Trade name: Demotec 90, Demotec 95

Use/purpose: Powder component of the 2-component acrylic system serving to treat bovine lameness.

Manufacturer/supplier:

Demotec
Siegfried Demel
Brentanostraße 21
D-61130 Nidderau
Tel.. 0049 - 6187 / 21200

Information centre in the case of poisoning:

Toxic/poison information centre in Berlin-Germany
Phone number: 0049 -(0)30 - 19240

2. Composition / information on ingredients

Chemical characterization

Acrylic polymer on the basis of methyl methacrylate

Dangerous components

Dibenzoyl peroxide

Concentration	1 to 3 %
CAS-No.	94-36-0
EINECS	202-327-6
Hazard symbols	E, Xi
R Phrases	7-36-43

3. Hazards identification

Product may cause irritations to the skin, eyes and mucous membranes. May cause sensitisation by skin contact.

4. First-Aid measures

After inhalation:	Remove the casualty into fresh air and keep him calm.
After swallowing:	In case of symptoms summon a doctor immediately.
After contact with skin:	In case of contact with the skin wash off immediately with water and soap. In case of skin irritations consult the doctor.
After contact with eyes:	In case of contact with eyes rinse thoroughly with plenty of water and consult the doctor.
After swallowing:	Rinse out mouth. Do not cause vomiting. Summon a doctor immediately.

5. Measures for fire fighting

Suitable extinguishing media:	Water spraying jet, foam, dry powder, Carbon dioxide.
Unsuitable extinguishing media for safety reasons:	Water full jet.
Special protective equipment for fire fighting:	Self-contained breathing apparatus (Insulating apparatus).

Indications for the fire brigade / fire fighter:

At the beginning fires can be extinguished with water. As soon as the burning resin develops into a fusion burning at a small flame it will react on water like burning fat or oil. In tests a fire – extinguishing gel (so-called connected hydro-gel, e.g. of the company *Hydrex*) has proven as the most efficient extinguishing medium.

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6. Accidental release measures

Precautionary measures related to humans

Avoid dust formation. Use a respiratory protection in case of effect of vapours, dust, aerosol. Wear personal protective clothing.

Methods of cleaning / absorption

Take up mechanically and dispose of according to regulations.

7. Handling and storage

Handling

Instructions on safe handling

Avoid dust formation and dust deposits. No eating, drinking, smoking, as well as no storing of food at working place.

Information on fire- and explosion protection

At higher quantities take measures against electrostatic charges.

In the event of fire, the endangered product should be cooled with water.

Storage

Requirements for storage areas and containers

Storage: dry; keep away from direct sunlight / avoid intense heating up.

8. Exposure controls / personal protection

Components or products of decomposition according to point 10, with limit values related to the place of work which require monitoring.

MAK (CFG) for

Methyl methacrylate 210 mg/m³

CAS-Number 80-62-6

Top demarcation Category 1

Annotations/Notes/Observations

Sensitizing

Y: No damage to harvests if MAK standards are complied with (TRGS 900).

MAK (DFG) value for

Dibenzoylperoxide 5 E mg/m³

CAS-Nummer 94-36-0

Top demarcation 1 (TRGS 900)

Personal protective equipment

General protective measures:

Do not inhale dust.

Hygiene measures:

Follow the usual trade-determined standards of hygiene.

Respiratory protection:

Wear filtering half mask during dust formation. Fine powder mask P2 is necessary when the MAK value is exceeded.

Eye protection:

Tightly fitting protective goggles.

Hand protection:

Protective gloves according to EN 388.

Notice:

As the product is used with the appropriate liquid (solvent), we recommend as hand protective material butyl-rubber.

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9. Physical and chemical properties

Appearance

Form: powder
Odour: odourless
Colour: Demotec 90: Grey
Demotec 95: white to beige to light grey

Changes in physical state

Softening point	approx.	100	°C	
Flash point	>	250	°C	(Method ASTM-D 1929-68)
Ignition temperature	>	400	°C	(Method ASTM-D 1929-68)
Lower explosion limit				Not determined
Upper explosion limit				Not determined
Vapour pressure				Not applicable
Density		1,17	g/cm ³	(at 20 °C)
Bulk density		600 to 750	kg/m ³	(at 20 °C)
Water solubility				Insoluble
Solubility/qualitative				In solvents, eg. esters, ketones and chlorinated hydrocarbons readily soluble
ph-value				Not applicable
Viscosity dynamic				Not applicable

Further information

The possibility of dust explosions is generally to be expected when dust-forming organic products are used.

10. Stability and reactivity

Thermal decomposition: at > 250 °C

No hazardous reactions known. Danger of rapid decomposition caused by the effect of heat.

Substances to be avoided: Avoid contact with other chemicals (alkali).

Hazardous decomposition products:

None if employed as directed. At thermal decomposition flammable, irritating vapours, irritating to eyes and respiratory system, especially consisting of: **Methyl methacrylate** will form.

11. Toxicological information

Acute oral toxicity

Acute toxicity (oral, rat): LD50 5000 mg/kg. Source: literature

Acute inhalation toxicity:

Acute inhalation toxicity (inhalative, rat, 4 h) LC50 22,40 mg/l Source: literature

Sensitisation

Skin contact may cause sensitisation. Source: literature

Carcinogenicity

The substance shows tumour promoting properties in animal test. Source: literature

Further information on toxicology

The fine particles contained in the product may cause mechanical irritations to the skin, eyes and mucous membranes. Source: literature

Further indications on toxicology

Dibenzoylperoxid shows on the basis of the calculation process of the General Classification Directives of the EU for preparations in the latest valid edition the following dangers: **Irritant**

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12. Ecological information

Ecotoxicological effect

Fish toxicity	LC 50 Guppy (<i>Poecilia reticulata</i>) 96 h 2 mg/l	Source: literature
	NOEC Guppy (<i>Poecilia reticulata</i>) 96 h 0,7 mg/l	Source: literature

12. Ecological information - Continued

Daphnia toxicity	LC 50 Daphnia magna	48 h 3,7 mg/l	Source: literature
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Further information on ecology

Do not allow to enter soil, waterways or waste water.

The above mentioned data refer to the component **Dibenzoyl peroxide**.

13. Disposal considerations

Product (components, powder and liquid)

European waste code (EWC): **07 02 99**

Not hardened plastic-/resin remnants, - moulding compounds and components.

Recommendation

Must be brought to an authorized special waste incineration plant in accordance with the regulations on special waste following local regulations.

Processing deposits (hardened plastics from both components)

Waste code/waste name: **17 02 03** Other hardened plastic waste.

Recommendation:

After polymerisation it can be deposited or incinerated in a special refuse incineration plant together with household refuse in consideration of the refuse disposing instructions according to the official local instructions.

Contaminated packaging

Can be incinerated in accordance with the official local instructions.

Recommendation

Cleaned packing materials can be deposited in the local recycling containers.

Recommended cleaning agent

Ethylacetate

14. Transport information

No hazardous good within the sense of the transport regulations.

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Page: 5 / 5**15. Regulatory information****Labelling in accordance with GefStoff/EC:****Hazardous components for labelling:****Hazard symbols:****Risk phrases (R-phrases):**

7

36/37/38

43

Security phrases (S-phrases):

3/7

14

36/37/39

Labelling required.

contains **dibenzoyl peroxide**

Xi irritant

May cause fire.

Irritating to the eyes, the respiration systems and the skin.

May cause sensitization by skin contact.

Keep the containers tightly closed and store them at a cool place.

Keep away from dirt, rust, chemicals like alkali, acids and accelerators, such as heavy metal salts and amines as protection against undesirable chemical reactions.

Wear adequate protective clothing and gloves and protective goggles / face protection during work.

National regulatory information**Peril to water classification:**

1 (Self-assessment)

Employment restrictions

- Observe protection of labour instructions regarding children and adolescents (Youth regulations law).
- Observe protection of labour instructions regarding expecting and nursing mothers (Maternity regulations law).

16. Other information

None!

The details are based on the present knowledge we have achieved; they are intended as a description of the products safety requirements and not to be seen as a guarantee of certain product features.