



MATERIAL SAFETY DATA SHEET

PART NUMBER 11 10 81 and 11 10 82

SECTION 1 PRODUCT IDENTIFICATION AND MANUFACTURE

1.1 Product identifier
PRODUCT KLEER SET Resin

1.2 Recommended use of the chemical and restrictions on use

Use of the Substance/Mixture : Mixture

1.3 Details of the supplier of the safety data sheet

SUPPLIER: METPREP LTD.
Unit 1, Falkland Close
Charter Avenue
COVENTRY CV4 8AU

CONTACT: sales@metprep.co.uk

1.4 Emergency telephone number

TELEPHONE: 024 7642 1222

Poison Information Centre telephone number European emergency phone number : 112
UK : National Poisons Emergency Number : 0845 4647
Ireland : National Poisons Information Centre (NPIC) Telephone Healthcare
Professionals : +353 (01) 809 2566. (24 hour service) Telephone Members of Public :
+353 (01) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

2.1. Classification of the substance or mixture

Classification of the substance or mixture - GHS/CLP (n° 1272/2008)

| | |
|--|------------|
| Skin Corrosion/Irritation | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 2 |
| Skin Sensitization | Category 1 |
| Reproductive Toxicity | Category 2 |
| Specific Target Organ Toxicity (Single Exposure) | Category 3 |
| Specific target organ toxicity - repeated exposure | Category 1 |
| Chronic Aquatic Toxicity | Category 3 |
| Flammable liquids | Category 3 |

2.2. Label elements

Contains Methyl methacrylate, Styrene



Signal word

Hazard statements

Danger

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H412 - Harmful to aquatic life with long lasting effects



Physical hazards
EU H -Phrases

H226 - Flammable liquid and vapour
EUH208 Contains phthalic anhydride- May produce an allergic reaction.

Precautionary statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243 - Take precautionary measures against static discharge
P260 - Do not breathe vapour
P273 - Avoid release to the environment
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

No information available.

SECTION 3 SUBSTANCE HAZARD IDENTIFICATION

3.2. Mixtures

Hazardous components

| Chemical Name | EC-No | REACH Registration Number | CAS-No | Weight | GHS Classification |
|---------------------|-----------|---------------------------|----------|--------|--|
| Styrene | 202-851-5 | 01-2119457861-32 | 100-42-5 | ~ 32 | Flam. Liq. 3 (H226) Repr. 2 (H361d) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Asp. Tox. 1 (H304) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Chronic 3 (H412) |
| Methyl methacrylate | 201-297-1 | 01-2119452498-28 | 80-62-6 | ~ 4 | Flam. Liq. 2 (H225) STOT SE 3 (H335) Skin Irrit. 2 (H315) Skin Sens. 1 (H317) |
| phthalic anhydride | 201-607-5 | 01-2119457017-4 | 85-44-9 | < 1 | Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Skin Sens. 1 (H317) Eye Dam. 1 (H318) Resp. Sens. 1 (H334) STOT SE 3 (H335) |

For the full text of the H-Statements mentioned in this Section, see Section 16

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|-----------------------------------|---|
| General advice | Show this safety data sheet to the doctor in attendance Do not breathe dust/fume/gas/mist/vapours/spray |
| Eye Contact | Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. If symptoms persist, call a physician |
| Skin contact | Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes If skin irritation persists, call a physician |
| Inhalation | Move to fresh air If not breathing, give artificial respiration Consult a physician |
| Ingestion | Do NOT induce vomiting. Rinse mouth. Consult a physician |
| Protection of first-aiders | Use personal protective equipment See section 8 for more information |



4.2. Most important symptoms and effects, both acute and delayed

| | |
|--------------|---|
| Eye Contact | Irritating to eyes |
| Skin contact | Irritating to skin May cause sensitisation by skin contact |
| Inhalation | Harmful: danger of serious damage to health by prolonged exposure through inhalation Irritating to respiratory system May produce an allergic reaction. |
| Ingestion | Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. |

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician No information available

SECTION 5 FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media Dry chemical, Foam, Carbon dioxide (CO₂), (closed systems)
Extinguishing Media Which Must not be Used for Safety Reasons Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases Vapours may form explosive mixtures with air. Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks)
Heating or fire can release toxic gas : Carbon monoxide

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self-contained breathing apparatus and protective suit.

Other information Cool containers / tanks with water spray.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Personal precautions Remove all sources of ignition
Heat, flames and sparks.
Take precautionary measures against static charges.
Ensure adequate ventilation
Use personal protective equipment

For emergency responders Avoid breathing vapours or mists In the event of fire and/or explosion do not breathe fumes. Use personal protective equipment

6.2. Environmental precautions

Environmental precautions The product should not be allowed to enter drains, water courses or the soil.
Do not flush into surface water or sanitary sewer system

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13)
Use clean non-sparking tools to collect absorbed material

6.4. Reference to other sections

See section 8 for more information
See Section 12 for additional Ecological Information



SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

| | |
|---|---|
| Precautions for safe handling | Avoid static electricity build up with connection to earth Use only in area provided with appropriate exhaust ventilation In case of insufficient ventilation, wear suitable respiratory equipment For personal protection see section 8 |
| Prevention of fire and explosion | Keep away from open flames, hot surfaces and sources of ignition Do not use compressed air for filling, discharging or handling. Empty containers may contain flammable or explosive vapours |
| Hygiene measures | When using, do not eat, drink or smoke Provide regular cleaning of equipment, work area and clothing Wash hands before breaks and at the end of workday. |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|--|--|
| Technical measures/Storage Conditions | Keep in a dry, cool and well-ventilated place. Keep at temperature not exceeding 30°C Keep away from heat and sources of ignition. |
| Materials to avoid | Strong oxidizing agents, Peroxides, Reducing agents |
| Packaging material | metallic GRP Tanks (Reinforced Glass Polyester) |
| Unsuitable materials for containers | Aluminium copper, Copper alloys, Bronze, Zinc |

7.3. Specific end use(s)

| | |
|------------------------|--------------------------|
| Specific use(s) | No information available |
|------------------------|--------------------------|

SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION

8.1. Control parameters

Occupational Exposure limits

| Chemical Name | European Union | ACGIH OEL (Ceiling) | The United Kingdom | Ireland |
|--------------------------------|----------------|---|--|--|
| Styrene 100-42-5 | - | TLV-8h TWA: 20 ppm - 85 mg/m ₃ TLV-15min STEL: 40 ppm - 170 mg/m ₃ | STEL 250 ppm STEL 1080 mg/m ₃ TWA 20 ppm TWA 430 mg/m ₃ | TWA 100 ppm TWA 85 mg/m ₃ STEL 40 ppm STEL 170 mg/m ₃ |
| Methyl methacrylate 80-62-6 | | TWA 50 ppm, STEL 100 ppm (2007) | STEL 100 ppm STEL 416 mg/m ₃ TWA 50 ppm TWA 208 mg/m ₃ | TWA 50 ppm STEL 100 ppm |
| phthalic anhydride 85-44-9 | | TWA 1 ppm | STEL 12 mg/m ₃ TWA 4 mg/m ₃ Sen+ | TWA 4 mg/m ₃ STEL 12 mg/m ₃ Sensitizer |

Special hazards arising from the substance or mixture

Biological standards

Derived No Effect Level (DNEL)

| Type | Styrene (100-42-5) | | DNEL inhalation | Remark |
|---|--------------------|------------------|-------------------------|--------|
| | DNEL oral | DNEL dermal | | |
| Workers - Long Term - Systemic effect | | 406 mg/Kg bw/day | 85 mg/m ₃ | |
| Workers - Acute Short Term - Local effect | | | 306 mg/m ₃ | |
| Workers - Acute Short term - Systemic effect | | | 289 mg/m ₃ | |
| General Population - Acute1 Short Term - Local effect | | | 82.7 mg/m ₃ | |
| General Population – Acute Short Term - Systemic effect | | | 174.2 mg/m ₃ | |
| General Population – Long Term - Systemic effect | 2.1 mg/Kg bw/day | 343 mg/Kg bw/day | 10.2 mg/m ₃ | |



| Type | Methyl methacrylate (80-62-6) | | | Remark |
|--|-------------------------------|------------------------|------------------------|--------|
| | DNEL oral | DNEL dermal | DNEL inhalation | |
| Workers - Long Term - Systemic effect | | 13.67 mg/kg bw/day | 208 mg/m ³ | |
| Workers - Long Term – Local effect | | 1.5 mg/cm ² | 208 mg/m ³ | |
| Workers - Acute Short Term - Local effect | | 1.5 mg/cm ² | | |
| General Population – Long Term - Systemic effect | | 8.2 mg/kg bw/day | 74.3 mg/m ³ | |
| General Population – Long Term - Local effect | | 1.5 mg/cm ² | 104 mg/m ³ | |
| General Population – Acute Short Term - Local effect | | 1.5 mg/cm ² | | |

| Type | phthalic anhydride (85-44-9) | | | Remark |
|--|------------------------------|-----------------|------------------------|--------|
| | DNEL oral | DNEL dermal | DNEL inhalation | |
| Workers - Long Term - Systemic effect | | 10 mg/kg bw/day | 32.2 mg/m ³ | |
| General Population – Long Term - Systemic effect | 5 mg/kg bw/day | 5 mg/kg bw/day | 8.6 mg/m ³ | |

Predicted No Effect Concentration (PNEC)

| PNEC Component | | |
|--------------------------------------|---------------|------------------------|
| Exposure | Type | PNEC |
| Styrene (100-42-5) | | |
| Fresh water | PNEC Aqua | 0.028 mg/L |
| Marine water | PNEC Aqua | 0.014 mg/L |
| Intermittent use/release | PNEC Aqua | 0.04 mg/L |
| Fresh water | PNEC Sediment | 0.614 mg/Kg.dw |
| Marine water | PNEC Sediment | 0.307 mg/Kg.dw |
| Terrestrial Compartment | PNEC Soil | 0.2 mg/Kg.dw |
| STP microorganisms | PNEC STP | 5 mg/L |
| Methyl methacrylate (80-62-6) | | |
| Fresh water | PNEC Aqua | 0.94 mg/L |
| Marine water | PNEC Aqua | 0.94 mg/L |
| Intermittent use/release | PNEC Aqua | 0.94 mg/L |
| Fresh water | PNEC Sediment | 5.74 mg/kg sediment dw |
| Terrestrial Compartment | PNEC Soil | 1.47 mg/kg soil dw |
| | PNEC STP | 10 mg/L |
| phthalic anhydride (85-44-9) | | |
| Fresh water | PNEC Aqua | 1 mg/L |
| Marine water | PNEC Aqua | 0.1 mg/L |
| Intermittent use/release | PNEC Aqua | 5.6 mg/L |
| | PNEC STP | 10 mg/L |
| Fresh water | PNEC Sediment | 3.8 mg/kg sediment dw |
| Marine water | PNEC Sediment | 0.38 mg/kg sediment dw |
| Terrestrial Compartment | PNEC Soil | 0.173 mg/kg soil dw |

8.2. Exposure controls

Occupational exposure controls
Engineering measures

Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment

Personal protective equipment
General Information

Use personal protective equipment.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment
Breathing apparatus with filter
Type A

Eye protection

Safety glasses with side-shields
Do not wear contact lenses

Skin and body protection

Antistatic boots
Protective shoes or boots.
Wear fire/flame resistant/retardant clothing



Hand protection Impervious gloves, ,, Glove material, :, Neoprene, ,, Nitriles, ,, Viton (R), or, Polyvinyl alcohol, Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Environmental exposure controls

Environmental exposure controls Do not allow material to contaminate ground water system.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| Property | Values | Remark |
|---|--------------------|---------------------------|
| Appearance | translucent | |
| Physical state | Liquid | |
| Particle size | | no data available |
| Odour | Styrene | |
| Odour Threshold | | no data available |
| pH | | no data available |
| pH (as aqueous solution) | | no data available |
| Melting point/range | - 30 °C | Values related to styrene |
| Freezing point | | no data available |
| Boiling point | 145 °C | Values related to styrene |
| Flash point 31 °C | | |
| Evaporation rate | | no data available |
| Flammability Limits in Air | | |
| upper | 6,1 - 6,8% | Values related to styrene |
| lower | 0,9 -1,1% | Values related to styrene |
| Vapour pressure | 6 hPa 20°C | |
| Vapour density | 3.6 | Values related to styrene |
| Density | 1.12 g/cm3 | 25°C |
| Water solubility | Insoluble in water | |
| Partition coefficient: n-octanol/water | | |
| Autoignition temperature | 490 °C | Values related to styrene |
| Decomposition temperature | | no data available |
| Viscosity, kinematic | 330 mm2/s | 25°C |
| Viscosity, dynamic | 370 mPa.s | 25°C |
| Explosive properties | | not applicable |
| Oxidizing properties | | not applicable |

9.2. Other information

| Property | Values | Remark |
|------------------------------|--------|-------------------|
| Solubility in other solvents | | No data available |

SECTION 10 STABILITY AND REACTIVITY PROPERTIES

10.1. Reactivity

Reactivity Product may ignite and burn at temperatures exceeding the flash point

10.2. Chemical stability

Stability Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions In use, may form flammable/explosive vapour-air mixture.

Hazardous polymerisation Polymerisation can occur.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.
Exposure to light.
Take precautionary measures against static charges.

10.5. Incompatible materials

Materials to avoid Strong oxidizing agents, Peroxides, Reducing agents

10.6. Hazardous decomposition products

Hazardous decomposition Products Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide



SECTION 11

TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Inhalation

Harmful: danger of serious damage to health by prolonged exposure through inhalation
Irritating to respiratory system May produce an allergic reaction.

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation | Read-across (Analogy) |
|--------------------------------|-----------------------------------|---------------------------------------|--|-----------------------|
| Styrene 100-42-5 | 5000 mg/kg (Rat) | > 2000 mg/kg bw (Rat) 24h OECD 402 | 11.8 mg/L (Rat) 4h CSR | |
| Methyl methacrylate 80-62-6 | > 5000 mg/kg bw (Rat) OECD 401 | > 5000 mg/kg bw (Rabbit) OECD 402 | 29.8 mg/L (7093 ppm) (Rat) 4h (vapor) OECD 403 | |
| phthalic anhydride 85-44-9 | 1530 mg/kg bw (Rat) | > 3160 mg/kg bw (Rabbit) | > 2.14 mg/L (Rat) 4h OECD 403 | |

Skin corrosion/irritation

Chemical Name

Skin corrosion/irritation

Read-across (Analogy)

| | | |
|--------------------------------|---|--|
| Styrene 100-42-5 | Irritating to skin in vivo assay rabbit | |
| Methyl methacrylate 80-62-6 | Irritating to skin rabbit Draize Test | |
| phthalic anhydride 85-44-9 | Irritating to skin in vivo assay rabbit OECD 404 | |

Serious Eye Damage/Eye Irritation

Chemical Name

Serious Eye Damage/Eye Irritation

Read-across (Analogy)

| | | |
|--------------------------------|--|--|
| Styrene 100-42-5 | Irritating to eyes in vivo assay Rabbit | |
| Methyl methacrylate 80-62-6 | Mild eye irritation rabbit Draize Test | |
| phthalic anhydride 85-44-9 | Irritating to eyes in vivo assay rabbit Draize Test | |

Respiratory or skin sensitisation May cause sensitisation by skin contact

Chemical Name

Respiratory or skin sensitisation

Read-across (Analogy)

| | | |
|--------------------------------|---|--|
| Styrene 100-42-5 | Does not cause skin sensitization Does not cause respiratory sensitization CSR | |
| Methyl methacrylate 80-62-6 | May cause sensitisation by skin contact mouse OECD 429 | |
| phthalic anhydride 85-44-9 | May cause sensitisation by inhalation and skin contact in vivo assay guinea pig OECD 406 | |

Mutagenic Effects

In vitro study

Chemical Name

Ames test

Read-across (Analogy)

| | | |
|--------------------------------|--|--|
| Styrene 100-42-5 | Ambiguous In vitro gene mutation study in bacteria OECD 471 | |
| Methyl methacrylate 80-62-6 | negative In vitro gene mutation study in bacteria OECD 471 | |
| phthalic anhydride 85-44-9 | negative In vitro gene mutation study in bacteria Salmonella sp. OECD 471 | |

Component

In vitro study <amma>oam Cell Gene Mutation Test

Read-across (Analogy)

| | | |
|---------|-----------|--|
| Styrene | Ambiguous | |
|---------|-----------|--|



100-42-5 (~ 31)

In vitro gene mutation study in mammalian cells

hamster
OECD 476
negative

phthalic anhydride
85-44-9 (< 1)

In vitro gene mutation study in mammalian cells

hamster
OECD 476

Chemical Name
Styrene
100-42-5

Mutagenicity (in vitro mammalian cytogenetic test)

Read-across (Analogy)

positive
Chromosome aberration test in vitro
OECD 473
OECD 479

phthalic anhydride
85-44-9

Ambiguous
Chromosome aberration test in vitro
hamster
OECD 473

in vivo assay

Chemical Name
Styrene
100-42-5

Unscheduled DNA Synthesis (UDS)

Read-across (Analogy)

negative
mouse
OECD 486
OECD 474

Methyl methacrylate
80-62-6

negative
mouse
OECD 478

Carcinogenicity
Carcinogenicity
Styrene (100-42-5)

Exposure routes
Inhalation

Method
OECD 453

Species
rat

Dose
NOAEC systemic
carcinogenicity) >= 4.34
mg/L air (nominal)

Evaluation
negative

Inhalation

OECD 453

mouse

LOAEC (carcinogenicity)
female/male = 0.09 - 0.18
mg/L air resp., NOAEC
(carcinogenicity) male =
0.09 mg/L air

positive

Oral

No information available

rat

NOAEL (carcinogenicity)
>= 2000 mg/kg bw /day

positive

Oral

No information available

mouse

LOAEL (carcinogenicity) =
150 mg/kg bw /day

positive

Methyl methacrylate (80-62-6)

Exposure routes
Inhalation

Method
OECD 451

Species
mouse

Dose
NOAEC (carcinogenicity,
systemic toxicity) >= 4.1
mg/L air (male/female)
LOAEC (local toxicity) =
2.05 mg/L air
(male/female)

Evaluation
negative

Inhalation

OECD 451

rat

NOAEC (carcinogenicity)
>= 2.05 mg/L air (female)
NOAEC (carcinogenicity)
>= 4.1 mg/L air (male)
NOAEC (systemic toxicity)
>= 2.05 mg/L air
(male/female)
LOAEC (local toxicity) =
1.03 mg/L air
(male/female)

negative

phthalic anhydride (85-44-9)

Exposure routes
Oral

Method
No information available

Species
mouse

Dose
NOAEL (carcinogenicity,
male) = 3570 mg/kg
bw/day (72w)
NOAEL (carcinogenicity,
female) = 1785 mg/kg
bw/day (72w)

Evaluation
negative

Oral

No information available

rat

NOAEL (carcinogenicity) =
1000 mg/kg bw/day

negative



(105w)

Reproductive toxicity Animal testing did not show any effects on fertility

Reproductive toxicity

Styrene (100-42-5)

| Exposure routes | Method | Species | Dose | Evaluation |
|-----------------|--------------------------|---------|--|------------|
| Inhalation | No information available | rat | NOAEL/LOAEL (fertility) 60d = 100 - 200 mg/kg bw/day | positive |
| Oral | OECD 422 | rat | NOAEL/LOAEL (fertility) 60d = 200 - 400 mg/kg bw/day | positive |
| Inhalation | OECD 416 | rat | NOAEC (P, F1) = 0.64 mg/L air LOAEC (P, F1) = 2.13 mg/L air NOAEC (F2) = 0.21 mg/L air LOAEC (F2) = 0.64 mg/L air (70d) | negative |

Methyl methacrylate (80-62-6)

| Exposure routes | Method | Species | Dose | Evaluation |
|-----------------|----------|---------|---|------------|
| Oral | OECD 416 | rat | NOAEL (general, systemic toxicity) = 50 mg/kg bw/day (male/female) NOAEL (fertility and reproductive performance) = 400 mg/kg bw/day (male/female) NOAEL (developmental toxicity) = 400 mg/kg bw/day (male/female) | negative |

phthalic anhydride (85-44-9)

| Exposure routes | Method | Species | Dose | Evaluation |
|-----------------|--------------------------|---------|--|------------|
| Oral | No information available | mouse | NOAEL (reproductive, male) = 3570 mg/kg bw/day (72w) NOAEL (reproductive, female) = 1785 mg/kg bw/day (72w) | negative |

Developmental Toxicity Suspected of damaging the unborn child.

Developmental Toxicity

Styrene (100-42-5)

| Route of Exposure | Method | Species | Dose | Evaluation |
|-------------------|--------------------------|---------|---|------------|
| Inhalation | No information available | rat | NOAEC/LOAEC (maternal toxicity + developmental toxicity) >50d = 1.08 - 2.15 mg/L air | positive |
| Inhalation | OECD 414 | rat | LOAEC (maternal toxicity) 6-15d = 1.28 mg/L air | positive |
| Inhalation | OECD 414 | rat | NOAEC (developmental toxicity) 6-15d >= 2.56 mg/L air | negative |
| Inhalation | OECD 414 | rabbit | NOAEC (maternal toxicity + developmental toxicity) 6-18d = 2.56 mg/L air | negative |

Methyl methacrylate (80-62-6)

| Route of Exposure | Method | Species | Dose | Evaluation |
|-------------------|----------|---------|---|------------|
| Inhalation | OECD 414 | rat | LOEC (maternal toxicity) = 0.41 mg/L air NOAEC (fetotoxicity) >= 8.3 mg/L air NOAEC (teratogenicity) >= 8.3 mg/L air | negative |
| Oral | OECD 414 | rabbit | NOAEL (maternal toxicity) = 50 mg/kg bw/day NOAEL (developmental toxicity) = 450 mg/kg bw/day | negative |

phthalic anhydride (85-44-9)

| Route of Exposure | Method | Species | Dose | Evaluation |
|-------------------|--------|---------|------|------------|
|-------------------|--------|---------|------|------------|



Oral Read-across (Analogy) rat NOAEL (maternal toxicity) positive
 phthalic acid Cas N° : = 1000 mg/kg bw/day
 88-99-3 NOAEL (teratogenicity) =
 NOAEL (teratogenicity) =
 1700 mg/kg bw/day

Specific target organ toxicity - single exposure May cause irritation of respiratory tract

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure, target organ(s): Central nervous system, Ears

STOT - single exposure

Remark

Styrene (100-42-5)

Route of Exposure

Inhalation

Method
OECD 412

Species
rat mouse

Dose
NOAEC male (28d) = 3.47 mg/L air
NOAEC (ototoxicity) 28d = 2.13 mg/L air
NOAEC (28d) = 0.181 mg/L air
NOAEC (28d) = 0.688 mg/L air

Evaluation

Inhalation

No information available

rat

NOAEC (nasal tract) = 0.85 mg/L air
NOAEC (overall) = 2.13 mg/L air
NOAEC (ototoxicity) = 0.85 mg/L air
LOAEC (ototoxicity) = 3.41 mg/L air
NOAEC (overall) = 2.13 mg/L air

Oral

No information available

rat

NOAEL (toxicity) = 1000 mg/kg bw/day
LOAEL (toxicity) = 2000 mg/kg bw/day

Oral

No information available

mouse

NOAEL (toxicity) = 150 mg/kg bw /day
LOAEL (toxicity) = 300 mg/kg bw /day

Inhalation

OECD 453

rat

LOAEC local (toxicity) = 0.21 mg/L air

Methyl methacrylate(80-62-6)

Oral

OECD 453

rat

NOAEL (male/female) >= 2000 ppm
NOAEL (male) >= 124.1 mg/kg bw/day
NOAEL >= 164 mg/kg bw/day

Inhalation

OECD 453

rat

NOAEC (90d) = 1000 ppm

phthalic anhydride (85-44-9)

Route of Exposure

Oral

Method
No information available

Species
rat

Dose
NOAEL = 1250 mg/kg bw/day
LOAEL = 2500 mg/kg bw/day
7 weeks

Evaluation

Oral

No information available

rat

NOAEL (105 weeks) = 500 mg/kg bw/day

Oral

No information available

mouse

LOAEL (male) = 2340 mg/kg bw/day
LOAEL (female) = 1717 mg/kg bw/day
72 weeks

Aspiration hazard
Other information

Due to the viscosity, this product does not present an aspiration hazard.
None



SECTION 12

ECOLOGICAL INFORMATION

12.1. Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not flush into surface water or sanitary sewer system

Acute aquatic toxicity - Component Information

| Chemical Name | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates. | Toxicity to fish | Toxicity to microorganisms |
|--------------------------------|---|--|--|--|
| Styrene 100-42-5 | LC50 (72h) = 4.9 mg/L (Pseudokirchnerella subcapitata) EPA OTS 797.1050 | EC50 (48h) = 4.7 mg/L (Daphnia magna), NOEC = 1.9 mg/L (Daphnia magna) OECD 202 | LC50 (96h) = 4.02 - mg/L (Pimephales promelas) OECD 203 | 10 EC (30min) = 500 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209 |
| Methyl methacrylate 80-62-6 | EC50 (72h) > 110 mg/L (Selenastrum capricornutum) OECD 201 | EC50 (48h) = 69 mg/L (Daphnia magna) OECD 202 | LC50 (96h) = 79 mg/L (Oncorhynchus mykiss) OECD 203 | EC3 (16h) = 100 mg/L (Pseudomonas putida) inhibition test, Bringmann-Kühn |
| phthalic anhydride 85-44-9 | EC50 (72h) = 68 mg/L, NOEC (72h) = 32 mg/L (Pseudokirchnerella subcapitata) OECD 201 | EC50 (48h) = 71 mg/L (Daphnia magna) OECD 202 | LC50 (96h) > 99 mg/L (Oryzias latipes) OECD 203 | EC50 (3h) > 1000 mg/L (Activated sludge), ISO 8192 EC50 (16h) = 13 mg/L (Pseudomonas putida), ISO 10712 |

Chronic aquatic toxicity - Component Information

| Chemical Name | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates. | Toxicity to fish | Toxicity to microorganisms |
|--------------------------------|---|---|---|---|
| Styrene 100-42-5 | | NOEC (21d) = 1.01 mg/L (Daphnia magna), LOEC (21d) = 2.06 mg/L, EC50 (21d) = 1.88 mg/L OECD 203 | | |
| Methyl methacrylate 80-62-6 | NOEC (72h) = 49 mg/L (Selenastrum capricornutum) OECD 201 | NOEC (21d) = 37 mg/L (Daphnia magna) OECD 211(Danio rerio) | NOEC (35d) = 9.4 mg/L, LOEC (35d) = 18.8 mg/L OECD Chemicals Testing OECD 210 | NOEC (28d) > 1000 mg/kg soil dw Program UPEC/3 |
| phthalic anhydride 85-44-9 | | NOEC (reproduction) 21d = 16 mg/L, EC50 (reproduction) 21d = 42 mg/L (Daphnia magna) OECD 211 | LC50 (7d) = 560 mg/L (Danio rerio), OECD 210 LOEC (total embryotoxicity) 60d = 32 mg/L, NOEC (mortality, length, weight, embryotoxicity) 60d = 10 mg/L, OECD 210 | |

Effects on terrestrial organisms - Component Information

| | | Acute toxicity phthalic anhydride (85-44-9) | | |
|---------------------------|-------------|--|--|---------|
| Acute toxicity | Test Method | Species | Values | Remarks |
| Plants | | Lactuca sativa | EC50 (germination) = 731 mg/L | |
| | | Chronic toxicity Styrene (100-42-5) | | |
| Chronic toxicity | Method | Species | Values | Remarks |
| Toxicity to invertebrates | OECD 207 | Eisenia foetida | LC50 (14d) = 120 mg/kg soil dw LOEC (burrowing time and mean percent weight change) = 65 mg/kg soil dw LOEC (survival) = 180 mg/kg soil dw NOEC (mean percent weight change) = 34 mg/kg soil dw | |



12.2. Persistence and degradability

Component Name

Styrene
100-42-5 (~ 31)
Methyl methacrylate
80-62-6 (~ 4)
phthalic anhydride
85-44-9 (< 1)

Biodegradation

87% (20d) similar to OECD 301D

94.3 % (14d)
OECD 301 C
68 % (10d), 74 % (30d)
OECD 301 D

Evaluation

Readily biodegradable

Readily biodegradable

Readily biodegradable

12.3. Bioaccumulative potential

Bioconcentration factor (BCF)

Styrene (100-42-5)

Method
Calculation method

Species

Bioconcentration factor (BCF)
74

Methyl methacrylate (80-62-6)

Method
Calculation method QSAR

Species

Bioconcentration factor (BCF)
2.97

phthalic anhydride (85-44-9)

Method
Calculation method

Species

Bioconcentration factor (BCF)
3.16 - 3.4

| Chemical Name | log Pow |
|--------------------------------|---------|
| Styrene 100-42-5 | 3 |
| Methyl methacrylate 80-62-6 | 1.38 |
| phthalic anhydride 85-44-9 | 1.6 |

12.4. Mobility in soil

| Chemical Name | LogKoc | Koc |
|--------------------------------|-------------|-----|
| Styrene 100-42-5 | 2.55 | 352 |
| Methyl methacrylate 80-62-6 | 0.94 - 1.86 | - |
| phthalic anhydride 85-44-9 | - | 31 |

12.5. Results of PBT and vPvB assessment

| Chemical Name | PBT | vPvB |
|--------------------------------|---|---|
| Styrene 100-42-5 | This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). | This substance is not considered to be very persistent nor very bioaccumulating (vPvB). |
| Methyl methacrylate 80-62-6 | This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). | This substance is not considered to be very persistent nor very bioaccumulating (vPvB). |
| phthalic anhydride 85-44-9 | This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). | This substance is not considered to be very persistent nor very bioaccumulating (vPvB). |

12.6. Autres effets néfastes

None known.

SECTION 13

DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products

Dispose of in accordance with the European Directives on waste and hazardous waste. Do not flush into surface water or sanitary sewer system

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Other information

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

**SECTION 14****TRANSPORT INFORMATION****14.1 UN number**

ADR/RID UN1866
IMDG/IMO UN1866
ICAO/IATA UN1866
ADN UN1866

14.2 UN proper shipping name

ADR/RID
Resin solution
UN1866, RESIN SOLUTION, 3, PG III, (D/E)
IMDG/IMO
Resin solution
UN1866, RESIN SOLUTION, 3, PG III, (31°C c.c.)
ICAO/IATA
UN1866, RESIN SOLUTION, 3, PG III
ADN
Resin solution
UN1866, RESIN SOLUTION, 3, PG III

14.3. Transport hazard class(es)

ADR/RID
Hazard class 3
IMDG/IMO
Hazard class 3
ICAO/IATA
Hazard class 3
ADN
Hazard class 3

14.4. Packing group

ADR/RID III
IMDG/IMO III
ICAO/IATA III
ADN III

14.5. Environmental hazards

ADR/RID No
IMDG/IMO No
Marine pollutant No
ICAO/IATA No
ADN No

14.6. Special precautions for user

ADR/RID
Classification Code F1
Tunnel restriction code (D/E)
Limited quantity 5 L
IMDG/IMO
EmS F-E, S-E
Limited quantity 5 L
ICAO/IATA
ERG Code 3L
Limited quantity 10 L
ADN
Classification Code F1
Limited quantity 5 L
ventilation VE01



Special precautions for users

Special precautions No information available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to MARPOL 73/78 and the IBC Code not applicable

SECTION 15 REGULATORY INFORMATION

This mixture is classified as hazardous according to regulation (EC) No. 1272/2008 [CLP]

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

Regulation (EC) No. 1907/2006 (REACH)

Regulation (EC) No. 1272/2008 (CLP)

Regulation (EU) No. 830/2015

Directive 88/642/EEC

Directive 98/24/EC

Directive 1999/92/EC

Directive 2012/18/EU

The mixture is subject to restrictions on use, see Annex XVII of the Regulation 1907/2006/EC (REACH): Column 1, n° 3; Column 1, n° 40.

European Union

Chemical Name

Styrene - 100-42-5

96/82/EC (SEVESO) - §9

50000

96/82/EC (SEVESO) - §6, §7

5000 tonnes

50000 tonnes

National regulatory information

The United Kingdom

Avoid exceeding of the given occupational exposure limits (see section 8).

Ireland

Avoid exceeding of the given occupational exposure limits (see section 8).

15.2. Chemical safety assessment

Chemical Safety Assessment

Yes

Exposure scenario

Relevant information for risk control are communicated in the form of exposure scenario attached to the safety data sheet.

SECTION 16 OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H225 - Highly flammable liquid and vapour

H226 - Flammable liquid and vapour

H302 - Harmful if swallowed

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 - May cause respiratory irritation

H361d - Suspected of damaging the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure if inhaled

H412 - Harmful to aquatic life with long lasting effects

EUH208 - May produce an allergic reaction

Training Advice

Handle in accordance with good industrial hygiene and safety practice. To avoid risks to man and the environment, comply with the instructions for use.

Sources of key data used to compile the datasheet

ECHA

SDS Creation Date:

September 2020

SDS Revision Date:

June 2017