

**PROCHEMICAL GROUP, s.r.o.**

Nabrezie Sv. Cyrila 47

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## Safety Data Sheet

in accordance to Regulation (EC) No 1907/2006  
(as amended by Commission Regulation (EU) No 453/2010)

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

<b>Substance name:</b>	$\alpha$ -Methylstyrene; 2-phenylpropene
<b>Synonyms:</b>	<ul style="list-style-type: none"><li>➤ alpha-Methylstyrene;</li><li>➤ Benzene, (1-methylethenyl)-;</li><li>➤ Isopropenylbenzene.</li></ul>
<b>EC Name:</b>	2-phenylpropene
<b>Index No:</b> (Annex VI to Regulation (EC) No 1272/2008)	601-027-00-6
<b>EC No:</b>	202-705-0
<b>CAS No:</b>	98-83-9
<b>REACH Registration No:</b> (assigned under Article 20(3) of Regulation (EC) No 1907/2006)	01-2119513231-58-0000

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<b>Identified uses:</b>	<p><math>\alpha</math>-Methylstyrene is used in production of other chemicals (INDUSTRIAL USE).</p> <p>The following uses are defined for <math>\alpha</math>methylstyrene:</p> <p>IU0 [importation and storage –INDUSTRIAL USE]; IU1 [A monomer (intermediate) in production of other chemicals (resins/polymers) –INDUSTRIAL USE].</p> <p>The Use Descriptors for <math>\alpha</math>-methylstyrene are listed as follows:</p> <p>Sectors of end use (SU): SU3; SU10; SU11; SU12. Process category (PROC): PROC1; PROC2; PROC3; PROC8b. Market sector by type of chemical product: PC19; PC32. Environmental release category (ERC): ERC6a; ERC6c; ERC6d.</p> <p>For details on Use Descriptors, refer Section 16 of this eSDS.</p>
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<b>Uses advised against:</b>	$\alpha$ -Methylstyrene shall not be used in contradiction to all relevant national/regional restrictions applied to this substance, including, but not limited to, those prescribed by REACH regulation.
<b>Exposure scenario(s):</b>	For detailed information on exposure assessment, please, refer Annex I to this eSDS.

### 1.3. Details of the supplier of the safety data sheet

<b>Manufacturer:</b>	Open Joint Stock Company "Ufaorgsyntez" Ufa, 450037 Republic of Bashkortostan Russian Federation
<b>Only Representative:</b>	<b>PROCHEMICAL GROUP s.r.o.</b> Nabrezie Sv. Cyrila 47 Prievidza 97101, Slovakia Reg.No.: 45492409 VAT No.: SK2023015863  <b>Sales department:</b> tel.: +421 911 993183 web: www.prochemical.eu mail: sales@prochemical.eu

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### 2.1.1 Classification according to the criteria of Regulation (EC) No 1272/2008 (CLP Regulation) (Annex VI, table 3.1):

<b>for physical-chemical properties:</b>	➤ Flammable liquids: Flam. Liquid Category 3; H226: Flammable liquid and vapour.
<b>for health hazards:</b>	➤ Serious damage/eye irritation: Eye Irrit. 2; H319: Causes serious eye irritation. ➤ Specific target organ toxicity - single: STOT Single Exp. 3; H335: May cause respiratory irritation.
<b>for environmental hazards:</b>	➤ Hazards to the aquatic environment: Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects.

#### 2.1.2 Classification according to the DSD/DPD criteria of Annex I of Directive 67/548/EEC and as reported in Regulation (EC) No 1272/2008 (Annex VI, table 3.2):

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<b>for physical-chemical properties:</b>	➤ Flammability: R10 Flammable
<b>for health hazards:</b>	➤ Irritation / Corrosion: Xi; R36/37 Irritant; Irritating to eyes and respiratory system.
<b>for environmental hazards:</b>	➤ Environment: N; R51/53 Dangerous for the environment; Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 2.2. Label elements

### 2.2.1 Labelling according to the GHS criteria of Regulation (EC) No 1272/2008 (CLP Regulation):

<b>Signalword:</b>	<b>Warning</b>		
<b>Hazard pictograms:</b>	<b>GHS02: flame</b> 	<b>GHS07: exclamation mark</b> 	<b>GHS09: environment</b> 
<b>Hazard statements:</b>	<p>H226: Flammable liquid and vapour.  H319: Causes serious eye irritation.  H335: May cause respiratory irritation.  H411: Toxic to aquatic life with long lasting effects.</p>		

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<b>Precautionarystatements:</b>	<p>➤ <b>Prevention:</b></p> <p>P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.</p> <p>P233: Keep container tightly closed.</p> <p>P240: Ground/bond container and receiving equipment</p> <p>P241: Use explosion-proof electrical/ventilating/lighting equipment</p> <p>P242: Use only non-sparking tools</p> <p>P243: Take precautionary measures against static discharge</p> <p>P261: Avoid breathing fume/gas/mist/vapours/spray.</p> <p>P264: Wash hands, face and open skin areas thoroughly after handling.</p> <p>P271: Use only outdoors or in a well-ventilated area</p> <p>P273: Avoid release to the environment</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection.</p>
	<p>➤ <b>Response:</b></p> <p>P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower</p> <p>P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P312: Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>P337+P313: If eye irritation persists: Get medical advice/attention.</p> <p>P370+P378: In case of fire: Use foam/ dry chemical/ carbon dioxide for extinction.</p> <p>P391: Collectspillage.</p> <p>➤ <b>Storage:</b></p> <p>P403+P233: Store in a well-ventilated place. Keep container tightly closed.</p> <p>P403+P235: Store in a well-ventilated place. Keep cool.</p> <p>P405: Store locked up.</p> <p>➤ <b>Disposal:</b></p> <p>P501: Dispose of contents/container in accordance with local/ regional/ national/ international regulation.</p>

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**2.2.2 Labelling according to the DSD/DPD criteria of Annex I of Directive 67/548/EEC and as reported in Regulation (EC) No 1272/2008 (CLP Regulation):**

<b>Indication of danger:</b>	Xi - irritant. N - dangerous for the environment.
<b>R-phrases:</b>	R10 - flammable. R36/37 - irritating to eyes and respiratory system. R51/53 - toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>S-phrases:</b>	S2 - keep out of the reach of children S61 - avoid release to the environment. refer to special instructions/safety data sheets

**2.3. Other hazards**

<b>Physical Chemical Hazards:</b>	<b>Fire and Explosion Hazards:</b>
	<ul style="list-style-type: none"> <li>➤ Flammable liquid. Will be easily ignited by heat, sparks or flames.</li> <li>➤ Flash point 57.8o C (open cup).</li> <li>➤ Auto-ignition temperature: 574o C.</li> <li>➤ Vapours may form explosive mixtures with air. Explosive limits, vol% in air: 0.9-6.6.</li> <li>➤ The vapour may be invisible and is heavier than air.</li> <li>➤ The vapour may travel to source of ignition and flash back.</li> <li>➤ The vapour may spread along ground and collect in low or confined areas (sewers, basements, tanks).</li> <li>➤ Vapour explosion hazard indoors, outdoors or in sewers.</li> <li>➤ Containers may explode when heated.</li> </ul>
	<p><b>Chemical Hazards:</b></p> <ul style="list-style-type: none"> <li>➤ Gives off toxic and irritant fumes when heated or burning.</li> <li>➤ Reacts with strong oxidants.</li> <li>➤ The substance may polymerize</li> <li>➤ Attacks aluminium and copper (ICSC 0732).</li> </ul>

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<p><b>Human Health Hazards:</b></p>	<p><b>Eye and Skin Contact:</b></p> <ul style="list-style-type: none"> <li>➤ The substance (vapour) irritates the eyes and the skin.</li> <li>➤ Lachrymator. Causes watering of the eyes.</li> <li>➤ Repeated or prolonged contact with skin may cause dermatitis</li> </ul> <p><b>Inhalation:</b></p> <ul style="list-style-type: none"> <li>➤ The substance is irritating to the respiratory tract.</li> <li>➤ Inhalation may cause nasal irritation, irritation of respiratory tract, cough, sore throat, headache, dizziness, light-headedness, and breathlessness.</li> <li>➤ Repeated inhalation may result in depression of the central nervous system (CNS).</li> </ul> <p><b>Ingestion:</b></p> <ul style="list-style-type: none"> <li>➤ Ingestion may cause irritation of mouth and stomach.</li> </ul>
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**SECTION 3: Composition/information on ingredients**

**3.1. Substances**

Main constituent(s):	Chemical name	CAS No	EC No	Weight content
	a-methylstyrene; 2-phenylpropene	98-83-9	202-705-0	≥ 99.7%
<b>Stabilizer(s):</b>	None			
<b>Other Hazardous Components/ Impurities:</b>	None			

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

<b>General notes:</b>	➤ Consult a physician. Show this safety data sheet to the doctor.
<b>Following inhalation:</b>	➤ If a person breathes in large amounts of this substance, move the exposed person to fresh air at once. Keep the affected person warm and at rest. Get medical attention immediately.
<b>Following skin contact:</b>	➤ Remove contaminated clothes. Rinse skin with plenty of water or shower. If symptoms such as redness or irritation develop, get medical attention.

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<b>Following eye contact:</b>	<ul style="list-style-type: none"> <li>➤ Check the affected person for contact lenses and remove contact lenses if easily possible.</li> <li>➤ Rinse with plenty of water for several minutes, occasionally lifting the lower and upper lids. Get medical attention.</li> </ul>
<b>Following ingestion:</b>	<ul style="list-style-type: none"> <li>➤ Important: never give anything by mouth to an unconscious person!</li> <li>➤ Rinse mouth. Do not induce vomiting. Volatile chemicals have a high risk of being aspirated into the lungs during vomiting which increases the medical problems. Get medical attention immediately.</li> </ul>

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

<b>Inhalation:</b>	<ul style="list-style-type: none"> <li>➤ The substance is irritating to the respiratory tract.</li> <li>➤ The substance may cause effects on the central nervous system (CNS).</li> </ul>
<b>Skin/Eye contact:</b>	<ul style="list-style-type: none"> <li>➤ The substance is irritating to eyes and skin.</li> <li>➤ Repeated contact with skin may cause dermatitis. Direct contact with the skin should be avoided.</li> </ul>
<b>Ingestion:</b>	<ul style="list-style-type: none"> <li>➤ Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis.</li> </ul>

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

<b>Acute exposure:</b>	<ul style="list-style-type: none"> <li>➤ For special medical treatment and/or advice immediately refer to medical professionals.</li> </ul>
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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

<b>Suitable extinguishing media:</b>	<ul style="list-style-type: none"> <li>➤ Dry chemical, CO<sub>2</sub>, water spray or regular foam.</li> </ul>
<b>Unsuitable extinguishing media:</b>	<ul style="list-style-type: none"> <li>➤ Do not use water jet (straight streams) to extinguish.</li> </ul>

#### 5.2. Special hazards arising from the substance or mixture

<b>Hazardous combustion products:</b>	<ul style="list-style-type: none"> <li>➤ Gives off toxic and irritant fumes when heated or burning.</li> </ul>
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<p><b>Fire and Explosion Hazards:</b></p>	<ul style="list-style-type: none"> <li>➤ Flammable liquid. Will be easily ignited by heat, sparks or flames.</li> <li>➤ Flash point 57.8oC (open cup).</li> <li>➤ Auto-ignition temperature: 574oC.</li> <li>➤ Vapours may form explosive mixtures with air. Explosivelimits, vol% in air: 0.9-6.6.</li> <li>➤ The vapour may be invisible and is heavier than air.</li> <li>➤ The vapour may travel to source of ignition and flash back.</li> <li>➤ The vapour may spread along ground and collect in low or confined areas (sewers, basements, tanks).</li> <li>➤ Vapour explosion hazard indoors, outdoors or in sewers.</li> <li>➤ Containers may explode when heated.</li> </ul>
<p><b>Unusual fire and explosion hazards:</b></p>	<ul style="list-style-type: none"> <li>➤ Gives off toxic and irritant fumes when heated or burning.</li> <li>➤ Vapours may travel to source of ignition and flash back</li> <li>➤ The vapour may be invisible and is heavier than air. It may spread along the ground and collect in low or confined areas (sewers, basements, tanks).</li> <li>➤ Runoff to sewer may create fire or explosion hazard.</li> <li>➤ Heating of container(s) will cause pressure rise with risk of bursting and subsequent explosion. Containers may explode when heated.</li> </ul>

**5.3. Advice for firefighters**

<p><b>Special fire fighting procedures:</b></p>	<ul style="list-style-type: none"> <li>➤ To fight fire use water spray, foam, dry chemical, carbon dioxide.</li> <li>➤ Do not use water jet to extinguish. Solid streams of water may spread fire.</li> <li>➤ Use water spray to knock down fire fumes if possible.</li> <li>➤ Cool containers with flooding quantities of water until well after fire is out. Apply water from as far a distance as possible.</li> <li>➤ Avoid unnecessary run-off of extinguishing media, which may cause pollution. Keep run-off water out of sewers and water sources.</li> </ul>
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<b>Personal protection:</b>	<ul style="list-style-type: none"><li>➤ Self-Contained Breathing Apparatus (SCBA) with appropriate chemical protection suit.</li><li>➤ Fire fighter's clothing conforming to European standard EN469.</li></ul>
<b>First aid:</b>	<ul style="list-style-type: none"><li>➤ If substance has got into eyes, wash out with water for at least 15 minutes and seek immediate medical attention.</li><li>➤ Remove contaminated clothing immediately and wash affected skin with soap and plenty of water.</li><li>➤ Persons who have been in contact with the substance or have inhaled fumes should get immediate medical attention. Pass on all available product information.</li><li>➤ In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing adhering to skin. Get immediate medical attention.</li></ul>

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures****6.1.1 For non-emergency personnel:**

<b>Protective equipment:</b>	<ul style="list-style-type: none"><li>➤ Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.</li></ul>
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**Emergency procedures:**

- Evacuate persons not wearing protective equipment from area of spill until clean-up is complete.
- Keep sparks, flames, and other sources of ignition away.
- Avoid breathing vapour or mist. Keep upwind.
- Ensure adequate ventilation.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Use personal protective equipment.
- Attempt to stop leak if without undue personnel hazard.
- Do not touch or walk through spilled material. Do not handle broken packages without protective equipment.
- If employees are required to clean up spills, they must be properly trained and equipped.
- Wash away any material, which may have contacted the body with copious amounts of water or soap and water.
- Work clothing that becomes wet should be immediately removed due to its flammability hazard.
- Ventilate sewers and basements where there is no risk to personnel or public.
- Do not wash away into sewer.
- Keep material out of water sources and sewers.
  - Do not let this chemical enter the environment.
- It may be necessary to contain and dispose of this chemical as a hazardous waste.
- If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact the responsible authority in your country/region for specific recommendations.

**6.1.1 For emergency responders:**

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**Emergency Response in case of Spill and Leak:**

- Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources.
- It may be necessary to contain and dispose of this chemical as a hazardous waste.
- If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact the responsible authority in your country/region for specific recommendations.
- If employees are required to clean up spills, they must be properly trained and equipped.
- Keep sparks, flames, and other sources of ignition away.
- Avoid breathing vapour or mist. Keep upwind.
- Ensure adequate ventilation.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Use personal protective equipment.
- Attempt to stop leak if without undue personnel hazard.
- Do not touch or walk through spilled material. Do not handle broken packages without protective equipment.
- Collect leaking and spilled liquid in sealable containers as far as possible.
- Absorb remaining liquid in sand or inert absorbent and remove to safe place. Then wash away with plenty of water.
- Wash away any material, which may have contacted the body with copious amounts of water or soap and water.
- Work clothing that becomes wet should be immediately removed due to its flammability hazard.
- Ventilate sewers and basements where there is no risk to personnel or public.
- Do not wash away into sewer.
- Keep material out of water sources and sewers.
- Build dikes to contain flow as necessary.
- Use water spray or mist to disperse vapors and dilute standing pools of liquid.
- Do not wash away into sewer.

**Public Safety Hazard:**

- Minimize number of personnel in risk area.

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**6.2. Environmental precautions**

**Accidental Spills and Releases:**

- Do not wash away into sewer.
- Keep away from drains, surface and ground water. Do not let this chemical enter the environment.
- If substance has entered a watercourse or sewer, inform the responsible authority.

**6.3. Methods and material for containment and cleaning up**

**For containment:**

- Prevent further leakage or spillage if safe to do so.
- It may be necessary to contain and dispose of this chemical as a hazardous waste.

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<p><b>For cleaning up:</b></p>	<ul style="list-style-type: none"> <li>➤ Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources.</li> <li>➤ It may be necessary to contain and dispose of this chemical as a hazardous waste.</li> <li>➤ If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact the responsible authority in your country/region for specific recommendations.</li> <li>➤ If employees are required to clean up spills, they must be properly trained and equipped.</li> <li>➤ If spilled, the following steps should be undertaken:</li> </ul> <p><b>Small spill:</b> Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place.</p> <p><b>Land spill:</b> Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Dike surface flow using soil, sand bags. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust. Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.</p> <p><b>Water spill:</b> Use natural barriers or oil spill control booms to limit spill travel. Remove from</p>
	<p>surface with suitable adsorbents, suction hoses.</p> <p><b>Air spill:</b> Apply water spray or mist to knock down vapors.</p>

#### 6.4. Reference to other sections

<p>Other information:</p>	<ul style="list-style-type: none"> <li>➤ For more information, refer to Sections 8 and 13 of this Safety Data Sheet.</li> </ul>
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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### 7.1.1 Protective measures

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<p>Training:</p>	<ul style="list-style-type: none"> <li>➤ Any person who comes into contact with the substance needs to be trained in proper handling and safety per applicable federal, state and local laws and regulations.</li> <li>➤ Employers must advise employees of all areas and operations where exposure to the substance might occur.</li> <li>➤ All workers who may be potentially exposed to this substance shall be kept informed of the hazards, relevant symptoms, effects of overexposure to, and proper precautions concerning safe use and handling of this chemical.</li> <li>➤ The hazard information shall be readily available to workers at all places of employment where this substance is manufactured, used, transported or stored.</li> </ul>
<p>Measures to prevent fire:</p>	<ul style="list-style-type: none"> <li>➤ Normal measures for preventive fire protection when handling highly flammable liquid substances. Keep sparks, flames, and other sources of ignition away. No smoking. Take measures to prevent the build up of electrostatic charge.</li> </ul>
<p>Measures to prevent aerosol and dust generation:</p>	<ul style="list-style-type: none"> <li>➤ Avoid formation of aerosols and mists.</li> <li>➤ Avoid inhalation of aerosols and mist.</li> <li>➤ Avoid contact with skin and eyes.</li> <li>➤ Use in a well ventilated area.</li> </ul>
<p>Measures to protect the environment:</p>	<ul style="list-style-type: none"> <li>➤ Do not wash away into sewer.</li> <li>➤ Keep away from drains, surface and ground water. Do not let this chemical enter the environment.</li> <li>➤ If substance has entered a watercourse or</li> </ul>
	<p>sewer, inform the responsible authority</p>

7.1.2 Advice on general occupational hygiene:

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Handling:	<ul style="list-style-type: none"> <li>➤ Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, or smoke during work. Wash hands before eating, after handling the substance, before breaks and at the end of workday.</li> <li>➤ Repeated contact with skin may cause dermatitis. Direct contact with the skin should be avoided.</li> <li>➤ Wash skin: The worker should immediately wash the skin when it becomes contaminated.</li> <li>➤ Work clothing that becomes wet should be immediately removed due to its flammability hazard.</li> </ul>
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7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:	<ul style="list-style-type: none"> <li>➤ Store in tightly closed containers.</li> <li>➤ Keep away from heat, sparks, and flames.</li> <li>➤ Store in a cool, dry, well-ventilated area.</li> <li>➤ Store separated from strong oxidizers, acids, alkalis.</li> </ul>
Packaging materials:	<ul style="list-style-type: none"> <li>➤ Containers, which are opened, must be carefully resealed and kept upright to prevent leakage.</li> </ul>
Requirements for storage rooms and vessels:	<ul style="list-style-type: none"> <li>➤ Store in an area without drain or sewer access.</li> </ul>
Further information on storage conditions:	<ul style="list-style-type: none"> <li>➤ Store separated from food and feedstuffs.</li> </ul>

7.3. Specific end use(s)

Fire/Explosion prevention:	<ul style="list-style-type: none"> <li>➤ No open flames. No contact with hot surfaces.</li> <li>➤ Standard measures for preventive fire protection when handling highly flammable liquid substances.</li> </ul>
Recommendations:	<ul style="list-style-type: none"> <li>➤ For detailed information on exposure scenarios, please, refer Annex I to this Safety Data Sheet.</li> </ul>

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National Occupational Exposure limit values

Substance:	➤ $\alpha$ -Methylstyrene (2-Phenylpropene)
CAS No.	➤ 98-83-9

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Country	Limit value - 8hours		Limit value Shortterm		Legalbasis
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
European Union	50	246	100	492	Indicative Occupational Exposure Limits (IOELVs)/ DIR2000/39/CE
Austria	50	246	100	492	Maximum Workplace Concentrations ("Maximale Arbeitsplatzkonzentrationen")
Belgium	50	246	100	492	Occupational exposure limits (Valeurs limites d'exposition professionnelle - VLEP/Grenswaarden voor beroepsmatig blootstelling - GWBB)
Bulgaria	No data available				
Cyprus	No data available				
Czech Republic	No data available				
Denmark	50	240	100	480	No data available
Estonia	No data available				
Finland	No data available				
France	25	123	100	492	Occupational exposure limit values for occupational exposure to
Germany	50	250	100	500	The German Committee on Hazardous Substances (Ausschuss für Gefahrstoffe - AGS); MAK values derived by the "DFG Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area"
Greece	No data available				
Hungary	-	246	-	492	Hungarian decree No. 25/2000 (IX.30) on the Chemical Safety of Workplaces issued by the Ministry of Social Affairs and Health
Ireland	No data available				
Italy	50	246	100	492	No data available
Latvia	No data available				
Lithuania	No data available				
Luxembourg	No data available				
Malta	No data available				
Netherlands	-	20	-	-	Limit values / The Netherlands: Dutch Legal Public Limit Values
Poland	-	240	-	480	The Interdepartmental Commission for Maximum Admissible Concentrations and Intensities for Agents Harmful to Health in
Portugal	No data available				
Romania	No data available				

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Slovakia	No data available				
Slovenia	No data available				
Spain	50	246	100	492	Spanish legislation on chemical agents (Royal Decree 374/2001 transposing
Sweden	20	98	50	245	No data available
United	50	246	100	491	Workplace Exposure Limits (WELs)

**Source:** Based on GESTIS International Limit values Database available at [http://www.dguv.de/ifa/en/gestis/limit\\_values/index.jsp](http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp)

**NOTE:** *All currently adopted by the national/regional competent authority level on safe exposure to this chemical shall apply.*

**8.1.2. International Occupational Exposure Limit Values**

Substance: CAS No.	<ul style="list-style-type: none"> <li>➤ α-Methylstyrene (2-Phenylpropene)</li> <li>➤ 98-83-9</li> </ul>
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Country/Organization	Limit value - 8 hours		Limit value Short term		Specific Notations
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
ACGIH	10	-	-	-	A3: Confirmed Animal Carcinogen with Unknown Relevance
Switzerland	50	250	100	500	to Humans Swiss occupational exposure limit values
USA-NIOSH	50	240	100	485	Recommended Exposure Limit (REL)
USA-OSHA	-	-	100	480	Permissible Exposure Limits (PELs)

**NOTE:** *All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.*

**8.1.3. The Derived No Effect Levels (DNELs)/ Derived Minimal Effect Levels (DMELs) and Predicted No Effect Concentrations (PNECs)**

**8.1.3.1. DNEL/DMEL from the CSR in accordance with REACH regulation**

Substance: CAS No.	<ul style="list-style-type: none"> <li>➤ α-Methylstyrene (2-Phenylpropene)</li> <li>➤ 98-83-9</li> </ul>
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Route of exposure	Workers				Consumers			
	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects systemic	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects systemic
Oral	Not required				No DNEL/DMEL is proposed			
Inhalation	Workplace exposure: DNEL/DMEL: 48 mg/m <sup>3</sup> (10 ppm) -8-hTWA.				No DNEL/DMEL is proposed			
Dermal	No DNEL/DMEL is proposed				No DNEL/DMEL is proposed			

**NOTE:**

*These values are not legally binding and referred here for recommendation purpose only. All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.*

8.1.3.2. PNECs from the CSR in accordance with REACH regulation:

Substance: CAS No.	<ul style="list-style-type: none"> <li>➤ α-Methylstyrene (2-Phenylpropene)</li> <li>➤ 98-83-9</li> </ul>
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Environmental protection target	PNEC
Freshwater:	➤ PNEC=18µg/L
Freshwater sediments:	➤ No PNEC is proposed
Marine water:	➤ PNEC=18µg/L
Marine sediments:	➤ No PNEC is proposed
Food chain:	➤ No PNEC is proposed
Microorganisms in sewage treatment:	➤ No PNEC is proposed
Soil (agricultural):	➤ No PNEC is proposed
Air:	➤ No PNEC is proposed

**NOTE:**

*These values are not legally binding and referred here for recommendation purpose only. All currently adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply. 8.2. Exposure controls*

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<p><b>Appropriate engineering controls:</b></p>	<ul style="list-style-type: none"> <li>➤ Engineering controls should be sufficient to reduce exposures to this chemical to the lowest level achievable.</li> <li>➤ <b>Hazard communication:</b> The transmittal of hazard information to workers is to be accomplished by such means as container labelling and other forms of warning, material safety data sheets, and employee training.</li> <li>➤ <b>Housekeeping and Hygiene Facilities:</b> The workplace should be kept clean, orderly, and in a sanitary condition. Adequate washing facilities shall be provided and maintained in a sanitary condition. Comply with principles of good industrial hygiene and safety practice. Do not eat, drink, or smoke during work. Wash hands before eating, before breaks and at the end of workday.</li> </ul>
<p><b>Personal Protection:</b></p>	<ul style="list-style-type: none"> <li>➤ <b>Eye/face protection:</b> If there is a potential that this chemical can come in contact with eye or skin, appropriate eye and skin protective equipment shall be provided and used. Appropriate eye and face protection may be necessary to prevent contact with this substance. Suitable protective clothing and eye protection should be in accordance with national, or regional standards and regulations.</li> <li>➤ <b>Skin protection:</b> Handle with appropriate gloves. Gloves must be inspected prior to use. Use proper glove removal method –without touching glove’s outer surface –to avoid skin contact with this product.</li> <li>➤ <b>Respiratory protection:</b> Personal Protective Equipment/ Respiratory Protection: should be used in accordance with company and applicable national regulatory requirements. Respiratory protection should be used to supplement the engineering controls and work practices. Persons should not be assigned to tasks requiring the use of respirators unless it has been determined they are physically able to perform the work and are trained to use the equipment.</li> <li>➤ <b>Chemical Protective Clothing:</b> The level of</li> </ul>

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	<p>protection selected should be based on the potential substance concentration and likelihood of contact/exposure. Suitable protective clothing and eye protection should be in accordance with national, or regional standards and regulations. All protective clothing shall be well aired and inspected for physical defects before re-use. Take off contaminated clothing and wash before re-use</p>
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**8.3. Environmental Exposure controls**

<b>Measures to prevent exposure:</b>	<ul style="list-style-type: none"> <li>➤ Apply all necessary Risk Management Measures to ensure compliance with relevant national or regional legislation requirements.</li> <li>➤ Engineering controls and good work practices;</li> <li>➤ Regular monitoring for leak detection;</li> <li>➤ Hazard communication;</li> <li>➤ Housekeeping and Hygiene Facilities.</li> </ul>
<b>Waste-related Measures:</b>	<ul style="list-style-type: none"> <li>➤ The transportation, storage, treatment, and disposal of the waste material must be conducted in compliance with local regulations for hazardous wastes. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements for disposal conditions.</li> </ul>

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

<b>Appearance:</b>	Colorless liquid substance.
<b>Odour:</b>	Characteristic strong aromatic odor.
<b>Odour threshold:</b>	Air: Odour threshold: 0.05 ppm to over 10 ppm (ACGIH, 2010)
<b>pH:</b>	No data available
<b>Melting point/freezing point:</b>	-23°C
<b>Initial boiling point and boiling range:</b>	163°C
<b>Flash point:</b>	57.8°C (open cup)
<b>Evaporation rate:</b>	No data available.
<b>Flammability:</b>	Flammable Liquid
<b>Upper/lower flammability or explosive limits:</b>	Explosive limits, vol% in air: 0.9-6.6.
<b>Vapour pressure:</b>	1.95 mm Hg; 259 Pa /QSAR estimated at 25°C/
<b>Vapour density:</b>	No data available.

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<b>Relative density:</b>	0.91 g/cm <sup>3</sup> (at 20°C)
<b>Solubility(ies) (Water):</b>	87 -109 mg/L /QSAR estimated at 25°C/
<b>Partition coefficient: noctanol/water:</b>	➤ Log Kow =3.44 / QSAR estimated/ ➤ Log Kow =3.48 /Handbook data/
<b>Auto-ignition temperature:</b>	574°C
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	0.94 cP (at 20°C)
<b>Explosive properties:</b>	Not explosive
<b>Oxidising properties:</b>	Not oxidizing

**9.2. Other information**

<b>Henry's law constant(HLC):</b>	➤ 4.33 x 10 <sup>-3</sup> atm·m <sup>3</sup> /mole; 439 Pa·m <sup>3</sup> / mole /QSAR estimated at 25°C /
<b>Conversion factors (in air at 25°C):</b>	➤ 1 ppm = 4.83 mg/m <sup>3</sup> ; 1 mg/m <sup>3</sup> =0.2 ppm (ACGIH, 2010).

**SECTION 10: Stability and reactivity****10.1. Reactivity**

<b>Reactivity Hazards:</b>	➤ Reacts with strong oxidants. ➤ The substance may polymerize. ➤ Attacks aluminium and copper (ICSC 0732).
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**10.2. Chemical stability**

<b>Stability/ Shelf-life:</b>	➤ Stable under recommended storage and use conditions.
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**10.3. Possibility of hazardous reactions**

<b>Special precautions:</b>	➤ Materials to avoid: incompatible materials. ➤ Conditions to avoid: heat, flames and sparks, elevated temperatures. ➤ Strong oxidizing agents, peroxides, halogens, organometallic compounds, metallic salts.
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**10.4. Conditions to avoid**

<b>Conditions contributing to instability:</b>	➤ Heat, flames and sparks, elevated temperatures.
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### 10.5. Incompatible materials

<b>Incompatibilities:</b>	➤ Materials to avoid: oxidizers, acids, alkalis.
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### 10.6. Hazardous decomposition products

<b>Hazardous decomposition products:</b>	➤ Carbon oxides.
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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<b>Toxicokinetics (absorption, metabolism, distribution and elimination):</b>	➤ Intravenously administered to experimental animals 2-phenylpropene was rapidly absorbed, readily metabolised and excreted with the urine as 2-phenyl-1,2-propanediol glucuronide—the major metabolite of 2-phenylpropene. It does not retain in the tissues (NTP, 2007).
<b>Acute toxicity:</b>	<p>➤ <u>Experimental animals data:</u> LD50 (Rat, oral) = 4900 mg/kg (HSDB data). LCLo (Lowest lethal concentration, rats, guinea pigs, 6-hour) = 3000 ppm (14490 mg/m<sup>3</sup>) (NTP, 2007). LD50 (Rabbit, dermal) = 16 ml/kg bw (OECD, 1998).</p> <p>➤ <u>Human information:</u> It is reported that inhalation exposure to high concentrations of 2-phenylpropene may result in sore throat, cough, and dizziness (ICSC 0732).</p> <p>➤ <u>Discussion:</u> The experimental data on acute toxicity of 2-phenylpropene are, generally, above the threshold for classification for acute toxicity (i.e. &gt; 2000 mg/kg bw via oral and dermal exposure routes, and &gt; 20 mg/L via inhalation exposure route). Additionally, QSARs modeling data based on the Cramer method (Estimation of toxic hazard- a decision tree approach) suggests low acute toxicity of 2-phenylpropene (QSAR model Toxtree, v. 1.60).</p> <p>Overall, 2-phenylpropene is considered to be of low acute toxicity.</p>
<b>Skin corrosion/irritation:</b>	➤ Skin contact with 2-phenylpropene may result in skin redness (ICSC 0732).

<p><b>Serious eye damage/irritation:</b></p>	<p>➤ 2-Phenylpropene is reported to cause eye redness and watering of the eyes (ICSC 0732).</p> <p>2-Phenylpropene has harmonized at EU level classifications for both EU classification systems and it is classified as Xi; R36/37 Irritant; Irritating to eyes and respiratory system, in accordance with Directive 67/548/EEC and Eye Irritant Category 2; H319: Causes serious eye irritation and STOT Single Exp. 3; H335: May cause respiratory irritation, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.</p>
<p><b>Respiratory irritation:</b></p>	<p>➤ 2-Phenylpropene may cause respiratory irritation. Human data report that this substance is acutely irritating to the eyes and upper respiratory tract above 200 ppm (ACGIH, 2010)</p>
	<p>2-phenylpropene is classified as Xi; R36/37 Irritant; Irritating to eyes and respiratory system, in accordance with Directive 67/548/EEC and Eye Irritant Category 2; H319: Causes serious eye irritation and STOT Single Exp. 3; H335: May cause respiratory irritation, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.</p>
<p><b>Respiratory or skin sensitization:</b></p>	<p>➤ Skin sensitisation: not considered to be a skin sensitizer.</p> <p>➤ Respiratory sensitisation: not considered to be a respiratory sensitizer.</p>
<p><b>Germ cell mutagenicity:</b></p>	<p>➤ 2-Phenylpropene was not genotoxic when tested in in vitro bacterial experimental systems and in most in vivo studies (OECD, 1998; NTP, 2007).</p> <p>Moreover, application of available QSAR model suggests that this substance is not mutagenic.</p> <p>Overall, 2-phenylpropene is not considered as genotoxic/mutagenic substance.</p>
<p><b>Carcinogenicity:</b></p>	<p>➤ The ACGIH classifies 2-phenylpropene as class A3 substance – Confirmed Animal Carcinogen with Unknown Relevance to Humans.</p> <p>This classification is based on the toxicology data obtained from the recent carcinogenicity studies of 2-phenylpropene in rodents (NTP, 2007). The findings observed in experimental animals are considered of limited applicability/relevance to human health.</p>
<p><b>Reproductive toxicity:</b></p>	<p>➤ 2-Phenylpropene is not considered as reproductive or developmental toxicant.</p>
<p><b>STOT-single exposure:</b></p>	<p>➤ 2-Phenylpropene is classified as Xi; R37 Irritant; Irritating to respiratory system, in accordance with Directive 67/548/EEC, and STOT Single Exp. 3, H335: May cause respiratory irritation, in accordance with the GHS criteria of Regulation (EC) No 1272/2008.</p>
<p><b>STOT-single exposure:</b></p>	<p>➤ Repeated dose exposure to 2-phenylpropene may result in toxicity to kidney, liver and non-neoplastic lesions of the nose in experimental animals (rats and mice) (NTP, 2007).</p> <p>The following NOAELs/LOAELs are summarised for 2-phenylpropene: NOAEL (inhalation, rats, chronic, systemic toxicity) = 100 ppm.</p>

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## SECTION 12: Ecological information

### 12.1. Toxicity

#### 12.1.1. Aquatic Environment

<b>Acute (short-term) toxicity:</b>	<ul style="list-style-type: none"> <li>➤ Fish: LC50 (96-hr, QSAR, experimental data) = 4.9 mg/L to 15 mg/L.</li> <li>➤ Crustacea (Daphnid): LC50 (48-hr, QSAR) = 1.8 mg/L to 3.4 mg/L.</li> <li>➤ Algae/aquatic plants (Green Algae): EC50 (96hr, QSAR) = 3.0 mg/L.</li> <li>➤ Other organisms: No data available</li> </ul>
<b>Chronic (long-term) toxicity:</b>	<ul style="list-style-type: none"> <li>➤ Fish: NOEC (QSAR) = 0.6 mg/L to 1.6 mg/L.</li> <li>➤ Crustacea (Daphnid): NOEC (QSAR) = 0.1 mg/L to 0.5 mg/L.</li> <li>➤ Algae/aquatic plants (Green Algae): NOEC (QSAR) = 1.5 mg/L.</li> <li>➤ Other organisms: No data available.</li> <li>➤ For effects on environment, 2-phenylpropene is classified as Aquatic Chronic Category 2, H411: Toxic to aquatic life with long lasting effects; and N; R51/53 Dangerous for the environment; Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment substance.</li> </ul>

#### 12.1.2. Terrestrial Environment

<b>Acute (short-term) toxicity:</b>	<ul style="list-style-type: none"> <li>➤ Soil macro-organisms: LC50 (14-day, QSAR, earthworm)=145.6 mg/L (ppm)</li> <li>➤ Terrestrial plants: No data available</li> <li>➤ Soil micro-organisms: No data available</li> <li>➤ Other terrestrial organisms: No data available</li> </ul>
<b>Chronic (long-term) toxicity:</b>	<ul style="list-style-type: none"> <li>➤ Soil macro-organisms: No data available</li> <li>➤ Terrestrial plants: No data available</li> <li>➤ Soil micro-organisms: No data available</li> <li>➤ Other terrestrial organisms: No data available</li> <li>➤ No direct or indirect exposure of the soil compartment to 2-phenylpropene is expected.</li> </ul>

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### 12.2. Persistence and degradability

<b>Hydrolysis:</b>	<ul style="list-style-type: none"> <li>➤ Evaluation of 2-phenylpropene structure shows that it is not expected to hydrolyze appreciably in the environment on the basis of a lack of hydrolysable functional groups.</li> </ul>
<b>Phototransformation/photolysis:</b>	<ul style="list-style-type: none"> <li>➤ Half-life of 0.2 days is estimated for reaction of 2-phenylpropene with hydroxyl radicals and 0.084 days for reaction with ozone in the atmosphere at 25°C [AOPWIN Program, v.1.92 &amp; v.1.91].</li> </ul> <p>Overall QSARs estimated half-life for degradation of 2-phenylpropene in air based upon AOPWIN Model is 1.43 hours.</p> <p>Based on the data on photochemical degradation of</p>
	<p>2-phenylpropene in the air, it is considered to degrade in the atmosphere via photooxidation process.</p>
<b>Biodegradation:</b>	<ul style="list-style-type: none"> <li>➤ The QSAR models predict timeframe within days/weeks for primary biodegradation of 2-phenylpropene and weeks for its ultimate degradation.</li> <li>➤ Overall ready biodegradability prediction provided by a number of BIOWIN (v.4.10) models suggests 2-phenylpropene is not ready biodegradable in the environment.</li> </ul>

### 12.3. Bioaccumulative potential

<b>Aquatic bioaccumulation:</b>	BCF/BAF (QSAR estimated) = 65.5 L/kg to 91.9 L/kg.
<b>Terrestrial bioaccumulation:</b>	No data available

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#### 12.4. Mobility in soil

<p><b>Known or predicted distribution to environmental compartments:</b></p>	<ul style="list-style-type: none"> <li>➤ QSAR modeling predicts that 2-phenylpropene will volatilize rapidly from surface water with DT50 = 0.06 days (river) and 4.42 days (lake).</li> </ul> <p>The estimated values for soil organic carbon-water partition coefficient (logKoc) of 2.84 -3.02 suggest that 2-phenylpropene has only slight potential to adsorb onto soil and sediment and, therefore, together with its high volatility, is not likely to persist in these environmental media.</p> <ul style="list-style-type: none"> <li>➤ The data on environmental distribution of 2-phenylpropene obtained from the level III fugacity model suggest that 2-phenylpropene will not persist in the environment and depending on various emission scenarios, most of 2-phenylpropene will be degraded by both biotic and abiotic mechanisms and the rest amount will be physically removed (advected) from the environment.</li> </ul>
<p><b>Surface tension:</b></p>	<ul style="list-style-type: none"> <li>➤ No data available</li> </ul>
<p><b>Adsorption/Desorption:</b></p>	<ul style="list-style-type: none"> <li>➤ log Koc (QSAR estimated) =2.84 L/kg to 3.02 L/kg</li> </ul>

#### 12.5. Results of PBT and vPvB assessment

<p><b>Persistence Assessment:</b></p>	<ul style="list-style-type: none"> <li>➤ The half-life of 2-phenylpropene in water, sediment and soil are 15 days, 135 days and 30 days, respectively.</li> </ul> <p>Therefore, 2-phenylpropene meets the Persistence criteria for sediment (fresh- or estuarine water sediment).</p>
<p><b>Bioaccumulation Assessment:</b></p>	<ul style="list-style-type: none"> <li>➤ The BCF (fish) of 2-phenylpropene = 91.9 L/kg wet-wt (BCF &lt;2000).</li> </ul> <p>Therefore, 2-phenylpropene does not meet the criteria for Bioaccumulation.</p>
<p><b>Toxicity Assessment:</b></p>	<ul style="list-style-type: none"> <li>➤ 2-Phenylpropene does not meet the PBT criteria for toxicity.</li> </ul>
<p><b>Conclusions on PBT or vPvB Properties:</b></p>	<ul style="list-style-type: none"> <li>➤ 2-Phenylpropene is considered persistent in sediment and is not considered bioaccumulative or toxic substance. Therefore, 2-phenylpropene is not a PBT or vPvB substance.</li> </ul>

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## 12.6. Other adverse effects

Other adverse effects:	No data available.
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## 12.7. Additional information

Conclusion on the environmental hazard assessment:	2-Phenylpropene has harmonised classification at the EU level in accordance with the CLP criteria and it is classified as Aquatic Chronic Category 2, H411: Toxic to aquatic life with long lasting effects; and N; R51/53 Dangerous for the environment, Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment substance.
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## SECTION 13: Disposal considerations

## 13.1. Waste treatment methods

Product/ Packaging disposal:	This substance, when discarded or disposed of, is a hazardous waste. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with local regulations for hazardous wastes.  Disposal can occur only in properly permitted facilities. Contact a licensed professional waste disposal service to dispose of this substance. Check
	state and local regulation of any additional requirements for disposal conditions.
Sewage disposal-relevant information:	Waste should not be disposed of by release to sewers.
Other disposal recommendations:	Disposal of containers: Please, refer your local/national/regional requirements on disposal.

## SECTION 14: Transport information 14.1.

## UN number

UN No:	2303
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## 14.2. UN proper shipping name

UN Proper Shipping Name:	ISOPROPENYL BENZENE
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## 14.3. Transport hazard class(es)

Hazard Class or Division:	3
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## 14.4. Packing group

UN Packing Group:	III
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## 14.5. Environmental hazards

Environmental Hazards:	2-Phenylpropene has harmonised classification at the EU level in accordance with the CLP criteria and it is classified as Aquatic Chronic Category 2, H411: Toxic to aquatic life with long lasting effects; and N; R51/53 Dangerous for the environment, Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment substance.
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## 14.6. Special precautions for user

Note:	A number of restrictions may apply to materials subject to local/ national/regional classifications requirements. Please refer to the appropriate regulation for specific details regarding classification requirements and restrictions.
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## 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transportation in bulk:	A number of restrictions may apply to materials subject to bulk transportation. Please, refer relevant regulation for specific information on bulk transportation requirements.
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## SECTION 15: Regulatory information

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

Export and Import of Dangerous Chemicals (Regulation (EC) No689/2008) Information:	This substance is not listed in the Annex I of Regulation (EC) No 689/2008.
CLP Regulation (EC) No1272/2008:	This substance is listed in Annex VI (tables 3.1 and 3.2) to CLP regulation.

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REACH Regulation (EC) No1907/2006:	Registration requirement (Article 5, REACH regulation): This substance is registered in accordance with provisions of REACH regulation. For registration number, please refer to section 1.1 of this SDS.
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15.2. Chemical safety assessment

CSA:	Chemical Safety Assessment has been carried out for this chemical in accordance with provisions of REACH regulation.
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SECTION 16: Other information

Use Descriptors:	<ul style="list-style-type: none"> <li>➤ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites.</li> <li>➤ SU10: Formulation [mixing] of preparations and/or repackaging (excluding alloys).</li> <li>➤ SU11: Manufacture of rubber products.</li> <li>➤ SU12: Manufacture of plastics products, including compounding and conversion.</li> <li>➤ PROC1: Use in closed process, no likelihood of exposure</li> <li>➤ PROC2: Use in closed, continuous process with occasional controlled exposure.</li> <li>➤ PROC3: Use in closed batch process (synthesis or formulation).</li> <li>➤ PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.</li> <li>➤ PC 19: Intermediate.</li> <li>➤ PC 32: Polymer preparations and compounds.</li> <li>➤ ERC6a: Industrial use resulting in</li> </ul>
	<p>manufacture of another substance (use of intermediates).</p> <ul style="list-style-type: none"> <li>➤ ERC 6c: Industrial use of monomers for manufacture of thermoplastics.</li> <li>➤ ERC 6d: Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers.</li> </ul>

Abbreviations and acronyms:

**ACGIH**      The American Conference of Governmental Industrial Hygienists  
**BAF**      Bio Accumulation Factor

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<b>BCF</b>	Bio Concentration Factor
<b>CASNo</b>	Chemical Abstracts Service number
<b>CLP</b>	Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008
<b>CSA</b>	Chemical Safety Assessment
<b>CSR</b>	Chemical Safety Report
<b>DMEL</b>	Derived Minimal Effect Level
<b>DNEL</b>	Derived No Effect Level
<b>DPD</b>	Dangerous Preparation Directive 1999/45/EEC
<b>DSD</b>	Dangerous Substances Directive 67/548/EEC
<b>DT50</b>	Half-life
<b>EC</b>	European Commission
<b>EC50</b>	Half maximal effective concentration
<b>ECHA</b>	European Chemicals Agency
<b>EC-Number</b>	EINECS and ELINCS Number (see also EINECS and ELINCS)
<b>EINECS</b>	European Inventory of Existing Commercial Substances
<b>ELINCS</b>	European List of notified Chemical Substances
<b>ES</b>	Exposure Scenario
<b>e-SDS</b>	Extended Safety Data Sheet (SDS with ES attached)
<b>EU</b>	European Union
<b>GHS</b>	Globally Harmonized System
<b>IUPAC</b>	International Union for Pure Applied Chemistry
<b>LC50</b>	Lethal concentration, 50%
<b>LD50</b>	Median Lethal Dose
<b>OEL</b>	Occupational Exposure Limit
<b>OSHA PEL</b>	Occupational Safety and Health Administration Permissible Exposure Level
<b>PBT</b>	Persistent, Bioaccumulative and Toxic substance
<b>PNEC(s)</b>	Predicted No Effect Concentration(s)
<b>PPE</b>	Personal Protection Equipment
<b>QSAR</b>	Qualitative Structure Activity Relationship
<b>SAR</b>	Structure Activity Relationship
<b>REACH</b>	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
<b>RMM</b>	Risk Management Measure
<b>STOT</b>	Specific Target Organ Toxicity
<b>(STOT)RE</b>	Repeated Exposure
<b>(STOT)SE</b>	Single Exposure
<b>TLV</b>	Threshold limit value
<b>TWA</b>	Time-Weighted Average
<b>UN</b>	United Nations
<b>vPvB</b>	Very Persistent and Very Bioaccumulative

**Key Literature References and Sources for data:**

ACGIH (2010)  $\alpha$ -Methylstyrene. Documentation of the Threshold Limit Values.

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Hazardous Substances Data Bank (HSDB) –US National Library of Medicine database of peerreviewedscientificdataonchemicals,availableat<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>.

ICSC: 0732 alpha-METHYL STYRENE, International Programme on Chemical Safety (IPCS), Prepared in the context of cooperation between the International Programme on Chemical Safety and the Commission of the European Communities IPCS, CEC2005.

NTP (2007) NTP Technical Report on the Toxicology and Carcinogenesis of  $\alpha$ -Methylstyrene (CAS No. 98-83-9) in F344/N Rats and B6C3F1 Mice (Inhalation Studies) National Toxicology Program, NTP TR 543, NIH Publication No. 08-4474, National Institutes of Health, Public Health Service, U.S. Department of Health and Human Services, November 2007.

OECD (1998) (1-Methylethenyl)Benzene, CAS No: 98-83-9, SIDS INITIAL ASSESSMENT PROFILE, SIAM 7, 25-27 March 1998. UNEP Publications.

**Document History:****Disclaimer:**

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**Annex I Exposure Scenarios addressing uses carried out by workers**

1.

<b>A monomer (intermediate) in production of other chemicals –INDUSTRIAL USE [ES1]</b>	
Free short title:	ES1: A monomer (intermediate) in production of other chemicals (resins/polymers) –INDUSTRIAL USE

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Systematic title based on used descriptor	<p><u>Sectors of Use:</u></p> <p>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</p> <p>SU 10: Formulation [mixing] of preparations and/or repackaging (excluding alloys)</p> <p>SU 11: Manufacture of rubber products</p> <p>SU 12: Manufacture of plastics products, including compounding and conversion</p> <p><u>Product category: PC</u></p> <p>19: Intermediate</p> <p>PC 32: Polymer preparations and compounds</p>
Processes, tasks activities covered	<p>PROC 1: Use in closed process, no likelihood of exposure</p> <p>PROC 2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3: Use in closed batch process (synthesis or formulation)</p> <p>PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large</p>
Assessment Method	contains Qualitative Risk Assessment (Tier I Risk Assessment): rs at dedicated facilities

**2. Operational conditions and risk management measures**

Occupational Exposure:

OELs currently adopted by the national/regional competent authority shall apply.

**International Occupational Exposure Limit values:**

Organization	Limit value-8-hour		Limit value-Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
ACGIH(TLV)	10ppm	-	-	-

**EU Occupational Exposure Limit values:**

Value	Critical endpoint/Comments	Country Threshold type
246mg/m <sup>3</sup>	8-h, TWA	EU, Indicative
50ppm		Occupational Exposure
492mg/m <sup>3</sup>	STEL	Limit Values
100ppm		(Directive 2000/39/CE)

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***DNEL/DMEL from the CSR:***

The following critical DN(M)ELs are proposed for occupational exposure to 2-phenylpropene:

□ Workers exposure: DMEL=48 mg/m<sup>3</sup> (8-hour TWA).

**Note:** These values are not legally binding and referred here for recommendation purpose only. All current values adopted by the national/regional competent authority levels on safe exposure to this chemical shall apply.

**Environmental Release Characterization:**

ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) E

RC 6c: Industrial use of monomers for manufacture of thermoplastics

ERC 6d: Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers

**2.1 Control of worker exposure**

Product characteristic:	<u>Physical state:</u> Colourless volatile, flammable liquid substance.
Risk management measures related to the design of product:	<ul style="list-style-type: none"> <li>➤ Avoid inhalation to vapour and mists/aerosols, skin and eye contact.</li> <li>➤ Use Personal Protective Equipment as required.</li> <li>➤ Use in a well ventilated area</li> <li>➤ Keep sparks, flames, and other sources of ignition away. No smoking. Take measures to prevent the build up of electrostatic charge.</li> <li>➤ Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, or smoke during work. Wash hands before eating, after handling the substance, before breaks and at the end of workday.</li> <li>➤ Work clothing that becomes wet should be immediately removed due to its flammability hazard.</li> </ul>
Amounts used:	Not specifically defined
Frequency and duration of use/exposure	8-hour work shift, Not specifically defined

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Human factors not influenced by risk management	<u>Respiration volume under conditions of use:</u> Heavy work, respiration volume = 30 m <sup>3</sup> /8h day; Light work, respiration volume = 10 m <sup>3</sup> /8h-day - Default values (ECHA Guidance on CSAC Chapter R.15, Section R8.4.2)
Other given operational conditions affecting worker exposure	General Local Exhaust Ventilation relevant to appropriate industrial work environment.
Technical conditions and measures at process level (source) to prevent release:	Occupational exposure may arise at operations where the substance is used, including storage, loading/unloading areas, leaks in the conveyor systems, loading mixers, maintenance and cleaning operations.
Technical conditions and measures to control dispersion from source towards the worker:	<ul style="list-style-type: none"> <li>➤ Engineering controls and good work practices;</li> <li>➤ Regular monitoring for leak detection;</li> <li>➤ Use of Respiratory Protection;</li> <li>➤ Protective clothing and equipment;</li> <li>➤ Hazard communication;</li> <li>➤ Housekeeping and Hygiene Facilities.</li> </ul>

**2.2 Control of environmental exposure**

Product characteristics	<u>Physical state:</u> Colourless volatile, flammable liquid substance.
Amounts used	Not specifically defined
Frequency and duration of use	Not specifically defined 365 d/y Assuming continuous industrial process.
Technical conditions and measures at process level (source) to prevent release	<ul style="list-style-type: none"> <li>➤ Engineering controls and good work practices;</li> <li>➤ Regular monitoring for leak detection;</li> <li>➤ Hazard communication;</li> </ul>

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<p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p>	<p><u>Emissions related measures:</u> Apply all necessary RMM to ensure compliance with relevant national or regional legislation requirements.</p> <p><u>Waste related measures:</u> This substance, when discarded or disposed of, is a hazardous waste. The transportation, storage, treatment, and disposal of the waste material must be conducted in compliance with local regulations for hazardous wastes.</p> <p>Disposal can occur only in properly permitted facilities. Check state and local regulation of any</p>
<p>additional requirements for disposal conditions. <b>3.</b></p>	
<p><b>Exposure estimation and reference to its source</b></p>	
<p>Worker exposure:</p>	<p>Occupational exposure may arise at operations where the substance is used, including storage, loading/unloading areas, leaks in the conveyor systems, loading mixers, maintenance and cleaning operations.</p> <p>Assuming that the exposure scenarios identified here take place in closed industrial systems under controlled conditions with all relevant engineering controls and work practices applied, worker exposure to 2-phenylpropene is not likely to be of concern.</p>
<p><b>4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES</b></p>	
<p>Worker exposure:</p>	<p>Use in industrial process. Applying all necessary RMM to reduce exposure to 2-phenylpropene and ensure compliance with relevant occupational exposure limits.</p> <p>Ensure compliance with all relevant national or regional legislation requirements applicable for this substance.</p>