



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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TQ0007 4-ACETOXYSTYRENE MONOMER
Revised 8-NOV-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Formula : C10H10O2
Molecular Weight : 162.2

Product Use

Monomer used to manufacture poly(p-Hydroxystyrenic) polymers.

Tradenames and Synonyms

4-ASM
p-ASM
PHENOL, 4-ETHENYL-, ACETATE
4-ETHENYL PHENOL ACETATE

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
4-Acetoxystyrene Monomer (4-ASM)	2628-16-2	>96.5
4-Hydroxystyrene Monomer (4-HSM)	2628-17-3	<2
4-Ethylphenol (EP)	123-07-9	<1.5

The following inhibitors may be used:

p-Methoxyphenol (MEHQ)	150-76-5	0.02-0.03
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(COMPOSITION/INFORMATION ON INGREDIENTS - Continued)

Components (Remarks)

OSHA hazardous according to 29 CFR 1910.1200
-4-Acetoxystyrene Monomer (4-ASM)
-4-Hydroxystyrene Monomer (4-HSM)
-4-Ethylphenol (EP)
-p-Methoxyphenol (MEHQ)

HAZARDS IDENTIFICATION

Emergency Overview

WARNING!
Colorless to amber liquid with a fruity odor.
Harmful if swallowed.
May cause allergic skin reaction.
Causes eye, respiratory tract, and skin irritation.
Avoid release to the environment.
Refrigeration is recommended for storage (46-54 F (8-12 C)).

Potential Health Effects

HAZARD DESCRIPTION

INFORMATION PERTAINING TO PARTICULAR DANGERS FOR MAN AND ENVIRONMENT

R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system, and skin.
R43 May cause sensitization by skin contact.

POTENTIAL HEALTH EFFECTS

INHALATION

Causes irritation to the upper respiratory tract.

EYE CONTACT

Causes irritation.

SKIN CONTACT

Causes irritation. Prolonged or repeated exposure may cause allergic skin reaction in some people.

INGESTION

Harmful if ingested.

REPRODUCTIVE

Prolonged or repeated exposure may cause reproductive disorders based on tests with laboratory animals.

TARGET ORGANS

Skin, liver, kidneys and ovaries.

(HAZARDS IDENTIFICATION - Continued)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Overexposure may aggravate existing respiratory conditions or dermatitis.

POTENTIAL ENVIRONMENTAL EFFECTS

Toxic to aquatic organisms.
Readily biodegradable.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

SKIN CONTACT

Remove contaminated clothing and wash skin with soap and water. If irritation and/or symptoms of sensitization develop, contact a physician.

Notes to Physicians

Treat symptomatically as required by the condition of the patient.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : 239 F (115 C)
Flammable limits in Air, % by Volume
LEL : Not Available
UEL : Not Available
Autoignition : 993 F (534 C)

UNUSUAL FIRE AND EXPLOSION HAZARDS

Rapid uncontrolled polymerization may occur. Foam or water can cause frothing. Toxic vapors may be given off at high temperatures.

Extinguishing Media

Dry Chemical, Carbon Dioxide.

Large fires, use water spray or alcohol-type aqueous film-forming foam (AFFF).

Fire Fighting Instructions

Evacuate personnel to a safe area. Isolate area. Keep personnel removed and upwind of fire. Shut off source of fuel, if possible and without risk. Cool tank/container with water spray.

Fight fire from maximum distance.

FIRE FIGHTING EQUIPMENT

Wear standard fire-fighting bunker gear and complete personal protective equipment when exposed to products of combustion. If there is a potential for skin exposure to 4-Acetoxy styrene Monomer see Exposure Controls/Personal Protection section of this MSDS.

HAZARDOUS COMBUSTION PRODUCTS

Carbon monoxide, phenol and acetic acid.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

(ACCIDENTAL RELEASE MEASURES - Continued)

Spill Clean Up

Do not allow eye or skin contact. Do not breathe vapor. Eliminate ignition sources. Place leaking containers in well-ventilated area. Contain spill to minimize contaminated area and facilitate salvage or disposal. All clean up and disposal should be carried out in accordance with local, State and Federal regulations. Consult with Federal, State, and local regulatory agencies to determine acceptable clean-up levels.

LIQUIDS: Absorb spilled liquids, collect and place in suitable container for disposal.

REPORTING

Comply with Federal, State, and local regulations on reporting spills and releases. Specific regulatory information will be detailed in the Regulatory Information section of this msds.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Wash contaminated clothing prior to reuse. Use with sufficient ventilation to keep employee exposure below recommended limits.

Handling (Physical Aspects)

When transferring, follow proper grounding procedures.

Storage

Keep away from heat, sparks and flames.

REFRIGERATION IS RECOMMENDED FOR STORAGE (46-54 °F (8-12 °C)). Protect from light and moisture. Keep in original tightly closed containers when not in use. Use with adequate ventilation. Do not enter storage area that is not adequately ventilated.

If frozen, thaw at room temperature between 59-86 °F (15-30 °C) and roll drum through several revolutions every 8-12 hours to redistribute inhibitor until completely thawed. Do not store for more than one(1) week at these temperatures. Consume monomer or return to refrigerated storage.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use sufficient ventilation to keep employee exposure below recommended limits.

Mechanical (General): Not recommended as the sole means of controlling employee exposure.

Personal Protective Equipment

RESPIRATORS: Wear a NIOSH approved respirator if there is potential for exposure to airborne dusts, mists or vapors.

PROTECTIVE CLOTHING

Take all precautions to prevent skin contact. Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

The gloves listed below may provide adequate protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Permeation time was found to be about 90 minutes under test-laboratory conditions for these nitrile gloves. If gloves contact ASM they should be changed periodically depending on the frequency of use and actual contact.

Pioneer AF-18
Pioneer A-15

EYE AND FACE PROTECTION

Wear chemical goggles and a face shield when handling.

OTHER PROTECTIVE EQUIPMENT

Chemical suit with the above-mentioned gloves sealed to the jacket sleeve and rubber boots. A safety shower and an eye bath should be available.

Exposure Guidelines

Applicable Exposure Limits

4-Acetoxystyrene Monomer (4-ASM)
AEL * (DuPont) : 0.01 ppm, 8 & 12 Hr. TWA

p-Methoxyphenol (MEHQ)

PEL (OSHA) : None Established
TLV (ACGIH) : 5 mg/m³, 8 Hr. TWA
AEL * (DuPont) : 2 mg/m³, 8 Hr. TWA
1 mg/m³, 12 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

TOXICOLOGICAL INFORMATION

Animal Data

INHALATION

Causes upper respiratory tract irritation.

LOEL: 4.9 mg/m³ (0.74 ppm) for male rats

NOEL: could not be determined.

EYE CONTACT

Moderately irritating.

SKIN CONTACT

LD50 rat: > 2000 mg/kg, not harmful.

Severely irritating to rabbit skin.

Extreme sensitizer in guinea pigs using the maximization test.

INGESTION

LD50, rat: 1732 mg/kg, harmful.

GENOTOXICITY

Not mutagenic in bacterial cells in culture. Causes chromosomal damage in human cells in culture.

TARGET ORGANS

Skin, liver, kidneys and ovaries.

SUBCHRONIC TOXICITY

28-day oral study:

NOEL = 200 mg/kg

Abnormal estrus cycle and reduced ovarian weights were observed in a twenty-eight (28) day dermal (rat) study.

ECOLOGICAL INFORMATION

Ecotoxicological Information

ECOTOXICOLOGICAL (Classified by EU criteria)

96 hr LC50 Rainbow trout : 1.5 mg/L, toxic

96 hr LC50 Bluegill : 2.2 mg/L, toxic

48 hr EC50 Daphnia : 1.7 mg/L; toxic

FATE

Readily biodegradable (Sturm test). Found to have a half-life of 20.0 days at a pH of 7, 88.7 days at a pH of 4, and less than 1 day at a pH of 9.

DISPOSAL CONSIDERATIONS

Waste Disposal

DISPOSAL METHODS

Consult 40 CFR, Parts 261 and 268, State and local regulations for guidance on disposal of this product. Incineration at a facility with proper Federal and State issued permits is the recommended method for disposal. DO NOT RELEASE INTO GROUND WATER.

Container Disposal

Empty containers retain product residue. Observe all hazard precautions. Keep away from heat, sparks, and flames. Do not distribute, make available, or reuse empty containers except for storage and shipment of original product. Remove all hazardous product residue, and puncture or otherwise destroy empty containers before disposal. Consult 40 CFR, Parts 261 and 268 for guidance on disposal.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO
Not Regulated.

ICAO
Proper Shipping Name : Aviation Regulated Liquid, n.o.s
(4-Ethenyl phenol acetate)
Hazard Class : 9
UN No. : UN3334
Packing Group : III

REGULATORY INFORMATION

U.S. Federal Regulations

This product complies with TSCA inventory reporting requirements.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 Hazard Categories Acute

313

This product is not subject to the reporting requirements of

Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

(REGULATORY INFORMATION - Continued)

INTERNATIONAL REGULATORY INFORMATION

Canada

DSL :No
NDSL :Yes Phenol, 4-ethenyl-, acetate

EU

EINECS :No
ELINCS :Yes (00-06-1399)

Japan

ENCS :Yes ENCS No. 3-2784 p-Acetoxystyrene

Korea

ECL :Yes (99-3-1349)

LABELING ACCORDING TO EU DIRECTIVES

Symbol:

Xn Harmful
Xi Irritant

R-phrases

R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system, and skin
R43 May cause sensitization by skin contact

Safety phrases

S3/9/14/49 Keep only in the original container in a cool, well-ventilated place away from oxidizing agents and acid substances.
S13 Keep away from food, drink and animal feedingstuffs .
S15 Keep away from heat.
S20 When using do not eat or drink.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
S29 Do not empty into drains.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.
S62 If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label
S64 If swallowed, rinse mouth with water (only if person is conscious).

OTHER INFORMATION

Additional Information

Because the long-term human health effects from exposure to 4-Acetoxy styrene Monomer have not been fully evaluated, exposure should be kept to the lowest level possible.

This material is for industrial use. Use only under the supervision of a technically qualified individual.

LABEL TEXT

DOMESTIC LABEL

4-ACETOXYSTYRENE MONOMER
4-ASM

COMPONENT(S)	CAS NUMBER(S)	PERCENT
4-Acetoxy styrene Monomer (4-ASM)	2628-16-2	>96.5%
4-Hydroxy styrene Monomer (4-HSM)	2628-17-3	< 2%
4-Ethylphenol (EP)	123-07-9	< 1.5%

The following inhibitor(s) may be used:

p-Methoxyphenol (MEHQ)	150-76-5	0.02-0.03%
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WARNING!

HARMFUL IF SWALLOWED.

MAY CAUSE ALLERGIC SKIN REACTION.
CAUSES EYE, RESPIRATORY SYSTEM, AND SKIN IRRITATION.
AVOID RELEASE TO THE ENVIRONMENT.

Do not allow contact with eyes, skin and clothing. Wash thoroughly after handling.

TARGET ORGANS: Skin, liver, kidneys and ovaries.

FIRST AID MEASURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration and call a physician.

SKIN CONTACT: Remove contaminated clothing and wash skin with soap and water. If irritation and/or symptoms of sensitization develop, contact a physician.

EYE CONTACT: Immediately flush eyes with water for 15 minutes. If irritation continues, get medical attention.

INGESTION: If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

FIRE: In case of large fires, use water spray or alcohol-type aqueous film-forming foam (AFFF). For small fires, use Dry Chemical or Carbon Dioxide.

(Continued)

SPILL OR LEAK: Contain or absorb with inert material, then place in a suitable container for disposal. Use appropriate Personal Protective Equipment(PPE).

STORAGE: Refrigeration is recommended for storage (46-54°F(8-12 °C)). If frozen, thaw at room temperature between 59-86 °F (15-30 °C) and roll drum through several revolutions every 8-12 hours to redistribute inhibitor until completely thawed. Do not store for more than one(1) week at these temperatures. Consume monomer or return to refrigerated storage.

SEE MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION.

EEC LABEL (Annex VIIB to UK)

4-ACETOXYSTYRENE MONOMER

EEC Danger Symbol: Xi Irritant

R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system, and skin
R43 May cause sensitization by skin contact

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S15 Keep away from heat.
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S27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
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S64 If swallowed, rinse mouth with water (only if person is conscious).

Refer to special instructions/Safety Data Sheet.

Disclaimer

The information included in this document is taken from sources, or based on data believed to be reliable and given in good faith. No warranty is made, however, as to the

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absolute correctness of any of this information, or that additional or other measures may not be required under particular conditions. The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to use in combination with any other material or in any process. Please refer to the OSHA Hazard Communication Standard 29 CFR 1910.1200 for guidance in the use of this information.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : DuPont Electronic Polymers L.P.
Telephone : 757-686-8663 or 919-248-5027

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS