



Arch Chemicals, Inc.

MATERIAL SAFETY DATA

FOR ANY EMERGENCY, CALL 24HOURS/ 7 DAYS:	1-800-654-6911
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC(R):	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS

PRODUCT NAME: HNR 120

I. PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 02-16-2001
SUPERCEDES: 12-13-2000
MSDS NO: 00555-0012 - 704510
SYNONYMS: None
CHEMICAL FAMILY: Organic mixture
DESCRIPTION / USE: Negative photoresist
FORMULA: Not applicable/Mixture

Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204

II. COMPOSITION/INFORMATION ON

INGREDIENTS

CAS or CHEMICAL NAME	CAS #	% Range
Benzene, dimethyl-	1330-20-7	65 - 75
Benzene, ethyl-	100-41-4	15 - 18
Cyclized polyisoprene	68441-13-4	9 - 15
2,6-Bis(4-azidobenzylidene)-4-methylcyclohexanone	5284-79-7	0.1 - 0.6

III. HAZARDS IDENTIFICATION

OSHA Hazard Classification: flammable, eye irritant, skin irritant, respiratory irritant, central nervous system depressant, liver toxin, blood toxin, kidney toxin, lung toxin

Routes of Entry: Inhalation, skin, eyes, ingestion
Chemical Interactions: No known interactions
Medical Conditions Aggravated: Skin diseases, Respiratory diseases including asthma and bronchitis, Pre-existing liver diseases, Pre-existing kidney disease, cardiovascular disease

Human Threshold Response Data

Odor Threshold:	
Xylene	20.0 ppm
Irritation Threshold:	
Xylene	100.0 - 200.0 ppm

Hazardous Materials Identification System/National Fire Protection Association Classifications

<u>Hazard Ratings:</u>	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>
HMIS	2*	3	0
NFPA	Not established		

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to cause significant toxicity unless there is prolonged exposure to high concentrations. Inhalation of high concentrations may result in central nervous system (CNS) effects such as dizziness, weakness, fatigue, nausea, headache, and lack of coordination. Inhalation of high concentrations may cause cardiac sensitization leading to risk of arrhythmia (irregular heartbeat).
Inhalation Irritation:	High concentrations are moderately irritating to the eyes, nose, throat, and lungs.
Skin Contact:	Skin contact may cause moderate irritation consisting of transient redness and swelling. This irritant effect would not be expected to result in permanent damage.
Skin Absorption:	No significant adverse effects to health would be expected to occur from dermal contact.
Eye Contact	Contact may cause moderate irritation consisting of transient redness, swelling, and mucous membrane discharge to the conjunctiva. No corneal involvement or visual impairment is expected.
Ingestion Irritation:	Ingestion may cause irritation of the gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.
Ingestion Toxicity:	Slightly toxic if swallowed.
Acute Target Organ Toxicity:	Central nervous system, Heart, Eyes, Skin, Respiratory Tract, Mucous membranes

Prolonged (Chronic) Health Effects

Carcinogenicity:	The International Agency for Research on Cancer (IARC) has classified this product or a component of this product as a Group 3 substance, Unclassifiable as to Its Carcinogenicity to Humans.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.
Inhalation:	Prolonged or repeated exposure may cause kidney, liver and blood damage.
Skin Contact:	Dermal contact may cause defatting of skin and/or dermatitis.
Skin Absorption:	There are no known or reported effects from chronic exposure except for effects (if any) similar to those experienced from acute exposure.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.
Chronic Target Organ Toxicity:	Liver, Blood, Skin, Kidneys
Supplemental Health Hazard Information:	No additional health information available.

IV. FIRST AID

and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

Additional Spill Information: Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section XIII, Disposal Consideration.

VII. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor. Ground and bond containers when transferring material.

Storage: Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Do not expose to direct light. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet.

Shelf Life Limitations: See label or certificate of analysis for shelf life if applicable.

Incompatible Materials for Storage: Refer to Section X, "Incompatible Materials."

Do Not Store At temperatures Above: 25 Deg. C. 77 Deg. C.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep exposure to airborne contaminants below the TLV, PEL, or other recommended exposure limit and/or maintain operator comfort. Use explosion-proof ventilation equipment when handling this product.

Protective Equipment for Routine Use of Product

Respiratory Protection: Wear a NIOSH approved respirator if levels above the exposure limits are possible.

Respirator Type(s): A NIOSH approved air purifying respirator with organic vapor cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

Skin: Wear impervious gloves to avoid skin contact. Follow good industrial hygiene practices.

Eyes: Use chemical goggles.

Protective Clothing Type: Polyvinylalcohol - Do not use this material with water applications., Viton™, Polyethylene and ethylene vinyl alcohol copolymer such as 4H.

Exposure Limit Data

CHEMICAL NAME	CAS #	OSHA PEL / STEL	ACGIH LIMITS	ACGIH WEEL
Xylenes (o-, m-, p- isomers)	1330-20-7	100 ppm TWA; 435 mg/m3 TWA	150 ppm STEL 100 ppm TWA	Not Established
Ethyl benzene	100-41-4	100 ppm TWA; 435 mg/m3 TWA	125 ppm STEL 100 ppm TWA	Not Established

CHEMICAL NAME	NIOSH Immediately Dangerous to Life or Health:
Xylenes (o-, m-, p- isomers)	900 ppm IDLH
Ethyl benzene	800 ppm IDLH (10 percent lower explosive limit)

IX. PHYSICAL DATA

Physical State:	clear Solution
Color:	yellow
Odor	aromatic
Molecular Weight:	Not Applicable/Mixture
pH	(@ 25 Deg. C) Not applicable
Octanol/Water Coeff:	No data
Solubility in Water:	nil
Bulk Density:	No data
Specific Gravity:	0.85 - 0.88
Vapor Density:	3.5 - 4.00 (air =1)
Vapor Pressure:	(@ 20 Deg. C) 10 mmHg
Evaporation Rate:	0.75 (n-Butyl acetate = 1)
Volatiles, % by vol.:	85 - 90 %
Boiling Point:	No data
Freezing Point:	No data

X. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Static discharge may cause ignition at temperatures at or above the flash point.
Reactive Properties:	Flammable, Not sensitive to mechanical shock., Product is sensitive to electrical static discharge.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	High temperatures Temperatures above the flash point in combination with sparks, open flames, or other sources of ignition.
Chemical Incompatibility:	strong oxidizing agents
Hazardous Decomposition Products:	oxides of nitrogen, carbon dioxide, carbon monoxide
Decomposition Temperature:	No data
Product May Be Unstable At Temperatures Above:	< 40 Deg. C. > 104 Deg. F.

XI. TOXICOLOGICAL INFORMATION

Component Animal

Oral LD50 value:	
Benzene, dimethyl-	Oral LD50 Rat = 4.3 g/kg
Dermal LD50 value:	
Benzene, dimethyl-	Dermal LD50 Rabbit > 2 g/kg
Inhalation LC50 value:	
Benzene, dimethyl-	Inhalation LC50 (4h) Rat = 6700 ppm

Product Animal Toxicity

Oral LD50 value:	Rat Believed to be 4 - 5 g/kg
Dermal LD50 value:	Rabbit Believed to be > 2 g/kg
Skin Irritation:	This material is expected to be moderately irritating.
Eye Irritation:	This material is expected to be moderately irritating.
Reproductive and Developmental Toxicity:	This material at concentrations above the occupational exposure limits has caused developmental effects in animals. However, these effects were observed only at those doses that resulted in maternal toxicity.

Component Data:

Benzene, dimethyl-	This material at concentrations above the occupational exposure limits has caused developmental effects in animals. However, these effects were observed only at those doses that resulted in maternal toxicity. Industrial exposures kept at
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	or below occupational exposures standards should not pose a reproductive or developmental toxicity hazard.
Benzene, ethyl-	This material at concentrations above the occupational exposure limits has caused developmental effects in animals. However, these effects were observed only at those doses that resulted in maternal toxicity.
Mutagenicity:	Not known or reported to be mutagenic.
Component Data:	
Benzene, dimethyl-	This chemical has been shown to be non-mutagenic based on a battery of assays.
Benzene, ethyl-	This material has been shown to be non-mutagenic in the majority of a battery of assays. Not expected to be a mutagenic hazard.
Carcinogenicity:	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.
Component Data:	
Benzene, dimethyl-	The International Agency for Research on Cancer (IARC) has classified this product or a component of this product as a Group 3 substance, Unclassifiable as to Its Carcinogenicity to Humans.

XII. ECOLOGICAL INFORMATION

Ecological Toxicity Values:

Benzene, dimethyl-	Fathead minnow, 96 hr. LC50: = 13.4 mg/l (flow-through). Rainbow trout (<i>Salmo gairdneri</i>) 96 hr. LC50: = 13.5 - 17.3 mg/l (nominal). Daphnia magna, 24 hr. LC50: = 150 mg/l (nominal, static). Bluegill 96 hr. LC50: = 24.5 mg/l (measured, static). Bluegill 96 hr. LC50: = 15.7 mg/l (measured, flow-through).
Benzene, ethyl-	Daphnia magna, 48 hr. LC50: = 75 mg/l (nominal, static). Fathead minnow, 96 hr. LC50: = 9.1 - 12.1 mg/l (measured, flow-through).

XIII. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary:	Spent or discarded material may be a hazardous waste.
Potential US EPA Waste Codes:	D001
Disposal Methods:	As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration.
Components subject to land ban restrictions:	Xylenes (o-, m-, p- isomers) Ethyl benzene

XIV. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description (49 CFR)

Land (U.S. DOT):	HYDROCARBONS LIQUID, N.O.S. 3 UN3295 PGIII
Air (IATA/ICAO):	HYDROCARBONS, LIQUID N.O.S., 3, UN3295, PG III
Water (IMO):	HYDROCARBONS, LIQUID N.O.S., 3.3. UN3295, PG III
Flash Point: (C)	27

Hazard Label/Placard: (Primary) FLAMMABLE
Xylenes (isomers and mixture) final RQ = 100 pounds (45.4 kg); also listed as Xylene; also listed as Xylene (mixed); also listed as Benzene, dimethyl-
Ethyl benzene final RQ = 1000 pounds (454 kg)
Emergency Response Guide Number: 128

XV. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

Pesticide acceptance indication: US EPA Registration Number: Not applicable

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311/312 (40 CFR 370.2):

Health: Acute
Chronic
Physical: Fire

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

Not applicable

Reportable Quantity (40 CFR 302.4):

Benzene, dimethyl- final RQ = 100 pounds (45.4 kg)
Ethyl benzene final RQ = 1000 pounds (454 kg)

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

Xylene (mixed isomers) form R reporting required for 1.0% de minimis concentration
Ethyl benzene form R reporting required for 1.0% de minimis concentration

Clean Air Act Socmi: Xylenes (nos)
Ethyl benzene
Clean Air Act Organic HAP 40 CFR Section 61.01(b) Xylenes (nos)
Ethyl benzene
Clean Air Act VOC Section 111 Xylenes (nos)
Ethyl benzene
Clean Air Act Haz. Air Pollutants Section 112 Xylenes (isomers and mixture)
Ethyl benzene,

State Right-to-Know Regulations Status of Ingredients

Pennsylvania: Benzene, dimethyl-
Benzene, ethyl-
New Jersey: Xylenes (o-, m-, p- isomers)
Ethyl benzene
Massachusetts: Xylene, Ethyl benzene

XVI. ADDITIONAL INFORMATION

MSDS REVISION
STATUS:

Revised to meet the ANSI standard of 16 sections.

MAJOR REFERENCES:

- Shimizu, H. et al. 1985. The Results of Microbial Mutation Test for Forty-Three Industrial Chemicals. Jpn. J. Ind. Health. Vol. 27. pp. 400-419.
- Zeiger, E. et al. 1987. Salmonella Mutagenicity Tests: 3. Results from the Testing of 255 Chemicals. Environmental Mutagenesis. Journal of the Environmental Mutagen Society. Volume 9, Supplement 9:1-110. Alan R. Liss, Inc. NY.
- Criteria Document: Recommendations for an Occupational Exposure Standard for Xylene. 1975. U.S. Department of Health, Education, and Welfare. National Institute for Occupational Safety and Health. HEW Publication No. (NIOSH) 75-168.
- National Toxicology Program. Toxicology and Carcinogenesis Studies of Xylenes (Mixed) in F344/N Rats and B6C3F₁ Mice. U. S. Department of Health and Human Services. Research Triangle Park, NC. 1986.

Other references available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT.