



Polymer

Arch Chemicals, Inc.

MATERIAL  
SAFETY DATA

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

**PRODUCT NAME: HTR D-2****SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

REVISION DATE: 07-11-2000 SUPERCEDES: 10-21-1999  
MSDS NO: 01469-0008 - 851017

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

SYNONYMS: None known  
CHEMICAL FAMILY: Cyclic ketone  
FORMULA:  $C_5H_8O$   
USE DESCRIPTION: Polyimide ancillary  
OSHA HAZARD CLASSIFICATION: Flammable liquid; skin, eye and respiratory irritant; nervous system depressant

## SECTION 2 COMPONENT DATA

## PRODUCT COMPOSITION

CAS or CHEMICAL NAME: Cyclopentanone  
CAS NUMBER: 120-92-3  
PERCENTAGE RANGE: 100%  
HAZARDOUS PER 29 CFR 1910.1200: Yes  
EXPOSURE STANDARDS: None Established

## SECTION 3 PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.

## STORAGE CONDITIONS:

STORE IN A COOL, DRY, WELL VENTILATED PLACE AWAY FROM ALL SOURCES OF IGNITION. KEEP CONTAINER CLOSED, VAPORS MAY BE FLAMMABLE.

OTHER: Outside or detached storage is preferable. Inside storage should be in a standard flammable liquids storage room or cabinet.

## PRODUCT STABILITY AND COMPATIBILITY

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: See Section 7, "Incompatible Materials".

## SECTION 4 PHYSICAL DATA

APPEARANCE: Oily liquid  
FREEZING POINT: -51 Deg.C (-60 Deg.F)

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BOILING POINT: 131 Deg.C (267 Deg.F)  
DECOMPOSITION TEMPERATURE: No Data  
SPECIFIC GRAVITY: 0.95  
BULK DENSITY: 0.95 (g/cc)  
pH @ 25 DEG.C: Not Applicable  
VAPOR PRESSURE @ 25 DEG.C: No Data (3.86 KPa @ 50 Deg.C)  
SOLUBILITY IN WATER: Slight  
VOLATILES, PERCENT BY VOLUME: 100%  
EVAPORATION RATE: No Data  
VAPOR DENSITY: 2.3 (Air = 1)  
MOLECULAR WEIGHT: 84  
ODOR: Ketone odor  
COEFFICIENT OF OIL/WATER DISTRIBUTION: No Data

#### SECTION 5 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

##### PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

###### RESPIRATORY PROTECTION:

Wear a NIOSH approved respirator if any exposure occurs.

###### VENTILATION:

Use explosion-proof local exhaust ventilation.

###### SKIN AND EYE PROTECTIVE EQUIPMENT:

Wear gloves, boots, apron and a face shield with safety glasses.  
A full impermeable suit is recommended if exposure is possible to large portion of body.

##### EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):

RESPIRATOR TYPE: NIOSH approved positive-pressure supplied air respirator

PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Impervious

#### SECTION 6 FIRE AND EXPLOSION HAZARD INFORMATION

##### FLAMMABILITY DATA:

EXPLOSIVE: No  
FLAMMABLE: Yes  
COMBUSTIBLE: No  
PYROPHORIC: No

FLASH POINT: 26 Deg.C (79 Deg.F) Test Method: Tag closed cup

AUTOIGNITION TEMPERATURE: No Data

FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): LEL - No Data UEL - No Data

##### NFPA RATINGS:

Health: 2  
Flammability: 3  
Reactivity: 0

##### HMIS RATINGS:

Health: 2  
Flammability: 3  
Reactivity: 0

##### EXTINGUISHING MEDIA:

Carbon dioxide, dry chemical, water spray

## FIRE FIGHTING TECHNIQUES AND COMMENTS:

Use water to cool containers exposed to fire.

See Section 11 for protective equipment for fire fighting.

## SECTION 7 REACTIVITY INFORMATION

## CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:

TEMPERATURES ABOVE: None known

MECHANICAL SHOCK OR IMPACT: No

ELECTRICAL (STATIC) DISCHARGE: Yes

HAZARDOUS POLYMERIZATION: Will not occur

INCOMPATIBLE MATERIALS: Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide,  
aldehydes

OTHER CONDITIONS TO AVOID: Ignition sources; high heat

## SUMMARY OF REACTIVITY:

EXPLOSIVE: No

OXIDIZER: No

PYROPHORIC: No

ORGANIC PEROXIDE: No

WATER REACTIVE: No

## SECTION 8 FIRST AID

## EYES:

Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

## SKIN:

Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be laundered before re-use.

## INGESTION:

Immediately drink large quantities of water. DO NOT induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

## INHALATION:

If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough product to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

## SECTION 9 TOXICOLOGY AND HEALTH INFORMATION

## ROUTES OF ABSORPTION

Inhalation, ingestion, skin and eye contact

## WARNING STATEMENTS AND WARNING PROPERTIES

DO NOT TAKE INTERNALLY. MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED

THROUGH THE SKIN. CAUSES MODERATE TO SEVERE EYE AND MUCOUS MEMBRANE IRRITATION. CAUSES SKIN IRRITATION. CAUSES RESPIRATORY IRRITATION. INHALATION OF HIGH CONCENTRATIONS MAY CAUSE CNS DEPRESSION. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DERMATITIS.

#### HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: No Data

IRRITATION THRESHOLD: No Data

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established for this product.

#### SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

##### INHALATION

###### ACUTE:

If inhaled, may cause irritation to the throat, mucous membranes, upper respiratory tract, and lungs. Any irritation would be expected to be transient with no permanent damage expected. High concentrations in air may be narcotic and depress the central nervous system (CNS) with symptoms including headache, breathing difficulty, dizziness, drowsiness, loss of coordination, weakness, nausea, and vomiting.

###### CHRONIC:

No effects would be expected except for those listed under acute inhalation exposure.

##### SKIN

###### ACUTE:

Skin contact would be expected to cause an irritation consisting of transient redness. This irritant effect would not result in permanent damage.

###### CHRONIC:

Prolonged or repeated skin contact may cause defatting of the skin, leading to dermatitis.

##### EYE

Contact with the eyes would be expected to cause a moderate to severe irritation consisting of reversible redness, swelling and mucous membrane discharge to the conjunctiva. No corneal involvement or visual impairment would be expected.

##### INGESTION

###### ACUTE:

Ingestion may cause irritation and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.

###### CHRONIC:

There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

##### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None known or reported.

##### INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY

None known or reported

##### ANIMAL TOXICOLOGY

###### ACUTE TOXICITY:

Inhalation LC 50: No Data

Dermal LD 50: > 5g/Kg (rabbit)  
Oral LD 50: 1.36 g/kg (rat)  
Irritation: May cause eye, skin, and respiratory irritation.

ACUTE TARGET ORGAN TOXICITY:

Irritation to the eyes, skin, lungs and mucous membranes. Inhalation may produce CNS depression and narcotic effects at high exposure concentrations.

CHRONIC TARGET ORGAN TOXICITY:

Prolonged or repeated skin contact may cause dermatitis. ..

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

There are no known or reported effects on reproductive function or fetal development.

CARCINOGENICITY:

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

MUTAGENICITY:

Not known or reported to be mutagenic

AQUATIC TOXICITY:

No Data

SECTION 10 TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:

LAND (U.S. DOT): CYCLOPENTANONE, 3 UN2245, PG 3

WATER (IMO): CYCLOPENTANONE, 3.3, UN2245, GP 3

AIR (IATA/ICAO): SAME AS LAND

HAZARD LABEL/PLACARD: FLAMMABLE LIQUID

REPORTABLE QUANTITY: NOT APPLICABLE (Per 49 CFR 172.101, Appendix)

EMERGENCY GUIDE NO: 127

SECTION 11 SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: (Per 40 CFR 302.4) Not Applicable

SPILL MITIGATION PROCEDURES:

Evacuation procedures must be placed into effect. Evacuate all non-essential personnel. Hazardous concentrations in air may be found in local spill area and immediately downwind. Utilize emergency response personal protective equipment prior to the start of any response. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel.

AIR RELEASE: Vapors may be suppressed by the use of water fog.

Contain all liquid for treatment and/or disposal as a

(potential) hazardous waste.

**WATER RELEASE:** This material is lighter than and slightly soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. If unable to divert, create an underflow dam to contain material. Continue to handle as described in land spill.

**LAND SPILL:** Create a dike or trench to contain materials. Spill materials may be absorbed using sand, clay pads, or non-combustible commercial absorbent. Do not place spill materials back in their original containers. Containerize and label all spill materials properly. Decontaminate all clothing and the spill area using a soap solution and flush with large amounts of water.

**SPILL RESIDUES:**

Dispose of per guidelines under Section 12, WASTE DISPOSAL.

**PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:**

Additional respiratory protection is necessary when a spill or fire involving this product occurs. You are recommended to use a NIOSH approved positive-pressure supplied air respirator.

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves, splash-proof goggles and impervious clothing, i.e., chemically impermeable suit.

Protection concerns must also address the potential of the physical characteristic of this product as flammable.

**SECTION 12 WASTE DISPOSAL**

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

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.

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.

**SECTION 13 ADDITIONAL REGULATORY STATUS INFORMATION**

**TOXIC SUBSTANCES CONTROL ACT:**

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Bernard  
, US

2000-12-08 16:19:24

Dear Customer:

Effective February 8, 1999, Olin Corporation spun off its specialty chemicals businesses into a new entity known as Arch Chemicals, Inc. The businesses of Arch Chemicals include Olin's former Water Chemicals and Microelectronic Chemicals businesses, as well as the Performance Chemicals business which includes performance polyols, biocides, hydrazine and sulfuric acid product lines. During a brief transition period, customers of Arch Chemicals will continue to receive Material Safety Data Sheets ("MSDS") with references to Olin Corporation. The information contained in the MSDS is being supplied by Arch Chemicals. During the transition to the Arch Chemicals' MSDS system, further changes to the attached MSDS(s) will result in additional mailing to you.

This MSDS is intended for your use in meeting your requirements under OSHA's Hazard Communication Standard (29 CFR 1910.1200) and SARA Title III. It is prepared by Arch Chemicals chemists, toxicologists, industrial hygienists, physicians, safety and environmental specialists. While MSDSs have proved invaluable in the hands of health and safety professionals as a tool for hazard evaluation of products in the confines of the workplace, caution must be exercised against direct extrapolation of MSDS hazard health data to the community environment, outside of the perimeter of the workplace, or use by the general public. For such purposes, safety, health, and environmental professionals should be consulted to interpret MSDS data for each specific situation. In case of an emergency, contact Arch Chemicals at 1-800-654-6911, 24 hours a day/7 days a week.

Under Arch Chemicals computerized order entry system, a copy of the relevant MSDS will automatically be sent to you when you order a product. If an MSDS is updated after your order is sent, we will forward the update with your next shipment of the same product. Enclosed with the MSDS is a supplement outlining the sections of the MSDS and a glossary of common terms.

Arch Chemicals appreciates your business and is committed to maintaining the highest standards of safety. If you have any questions, please contact, Lauri A. Taylor, Manager, MSDS Control at 1-800-511-MSDS(6737) for assistance during working hours.

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