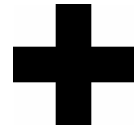




UNION CARBIDE CORPORATION
A Subsidiary of The Dow Chemical Company
MATERIAL SAFETY DATA SHEET



Product Name: UNIVAL(TM) DMDC-6143 NT 7 High
Density Polyethylene Resin
MSDS#: 22598

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Union Carbide urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: 1) Notify its employees, agents, contractors and others whom it knows or believes will use this material of the information in this MSDS and any other information regarding hazards or safety; 2) Furnish this same information to each of its customers for the product; and 3) Request its customers to notify their employees, customers, and other users of the product of this information.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name	UNIVAL(TM) DMDC-6143 NT 7 High Density Polyethylene Resin
Chemical Name	BASE RESIN: 1-Hexene, Polymer with Ethene
Chemical Family	Natural Pelleted Thermoplastic Polyethylene Compounds
Formula	Not Applicable
Synonym	None

1.2 COMPANY IDENTIFICATION

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
39 Old Ridgebury Road
Danbury, CT 06817-0001

1.3 EMERGENCY TELEPHONE NUMBER

24 hours a day: CHEMTREC 1-800-424-9300.

Number for non-emergency questions concerning MSDS (732) 563-5522
Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

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2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
1-Hexene, Polymer with ethene	25213-02-9	>= 99 %

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance 0.3 cm (1/8 inch) diameter pellets; whitish color.

Physical State Pellets

Odor Negligible odor

Hazards of product CAUTION! PLASTIC BAG OR LINER, IF PRESENT, MAY CAUSE STATIC IGNITION HAZARD. EXPOSURE TO DUST AND PROCESSING FUMES MAY CAUSE IRRITATION OF SKIN, EYES, AND RESPIRATORY TRACT.

3.2 POTENTIAL HEALTH EFFECTS

General Health Hazards

Treat fines and dust as nuisance particulates. Avoid breathing dust and processing fumes. Dust causes eye irritation, experienced as stinging and discomfort or pain. Polyolefin pellets or granules are abrasive and may cause mechanical skin irritation. Molten or hot polymer will cause thermal burns.

Effects of Single Acute Overexposure

Inhalation See General Health Hazards.

Eye Contact See General Health Hazards.

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Skin Contact See General Health Hazards.

Skin Absorption No evidence of harmful effects from available information.

Swallowing No evidence of harmful effects from available information.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure No adverse effects anticipated from available information.

Other Effects of Overexposure None currently known.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological Information.

4. FIRST AID PROCEDURES

4.1 INHALATION

If inhaled, remove to fresh air.

4.2 EYE CONTACT

In case of dust contact with eye(s), flush eyes thoroughly with water for several minutes. Remove contact lenses, if worn. Seek medical advice if irritation persists. For thermal eye burns, immediately flush eyes with water and continue washing for several minutes. DO NOT remove contact lenses, if worn. Obtain medical attention without delay, preferably from an ophthalmologist.

4.3 SKIN CONTACT

For thermal skin burns, remove clothing, any jewelry, and gross debris from the burned area. Leave blisters intact. Wash the area thoroughly with room temperature tap water. Do not use ice. Cover the wounded area with gauze dressing moistened with cool water; keep the dressing moist. Seek medical attention.

4.4 SWALLOWING

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No emergency care anticipated.

4.5 NOTES TO PHYSICIAN

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash Point - Closed Cup: *Not determined.*

Flash Point - Open Cup: *Not determined.*

Autoignition Temperature: Generally 260-410°C (500-770°F) depending on individual product composition.

Flammable Limits In Air:

Lower *Not determined.*

Upper *Not determined.*

5.2 EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 EXTINGUISHING MEDIA TO AVOID

No information currently available.

5.4 SPECIAL FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.

5.5 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.6 UNUSUAL FIRE AND EXPLOSION HAZARDS

Avoid dispersion of dust in air to reduce potential for dust ignition/explosions. Refer to National Fire Protection Association Document NFPA 69 for descriptions of explosion prevention systems.

See Section 8.3 - Engineering Controls

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5.7 HAZARDOUS COMBUSTION PRODUCTS

See Section 10.1 - Thermal Decomposition

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

Sweep up and collect in suitable container for disposal. CAUTION: Polyethylene pellets on floors are slippery and can cause falls.

Personal Precautions: Wear suitable protective equipment. See Section 8.2 - Personal Protection.

Environmental Precautions: To prevent littering, avoid releases to surface waters.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not handle or empty bag or liner in presence of flammable vapor.

Avoid breathing dust and process fumes.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation

Local exhaust ventilation is recommended for control of airborne dust, fumes, and vapor, particularly in confined areas.

7.2 STORAGE

Store in accordance with good industrial practices. Storage information may be obtained from product-specific Union Carbide Storage and Handling Guides, or by calling a Union Carbide Customer Service Representative.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin Form
Nuisance Dust	10 mg/m ³ TWA8 ACGIH	Inhalable Particulate Particulate matter containing no asbestos and crystalline silica <1%
Nuisance Dust	3 mg/m ³ TWA8 ACGIH	Respirable particulate Particulate matter containing no asbestos and crystalline silica <1%
Nuisance Dust	5 mg/m ³ TWA8 OSHA 15 mg/m ³ TWA8 OSHA	Respirable fraction Total dust

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

There are no established OSHA, ACGIH or UCC exposure limits for polymer, however, Union Carbide treats polymer dust as a nuisance particulate.

8.2 PERSONAL PROTECTION

Respiratory Protection: Use NIOSH-approved respirator if unable to control airborne dust, fumes, and vapor.

Ventilation: Local exhaust ventilation is recommended for control of airborne dust, fumes, and vapor, particularly in confined areas.

Other Protective Equipment: Wear gloves and suitable eye protection.

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8.3 ENGINEERING CONTROLS

Physical handling and processing of this product such as through pneumatic conveying and grinding, etc., can generate fines and dust particles that can, under certain conditions, pose an explosion hazard. We recommend that the systems used be: (1) equipped with filters of adequate size, (2) operated and maintained in a manner to ensure that no leaks develop and (3) adequately grounded. We further recommend good housekeeping be practiced throughout the facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Pellets

Appearance: 0.3 cm (1/8 inch) diameter pellets; whitish color.

pH: *Not currently available.*

Solubility in Water (by weight): *Not determined.*

Odor: Negligible odor

Solid Density: 0.890 - 0.965 g/cm³ 55.561 - 60.243 lb/ft³

Boiling Point (760 mmHg): *Not determined.*

Freezing Point: *Not determined.*

Specific Gravity (H₂O = 1): *Not determined.*

Vapor Pressure at 20°C: *Not determined.*

Vapor Density (air = 1): *Not determined.*

Melting Point: *Not determined.*

Melt Index: 0.005 - 200

10. STABILITY AND REACTIVITY

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10.1 STABILITY/INSTABILITY Stable

Conditions to Avoid: Trace amounts of benzene may be generated during fabrication processes. The amount of benzene generated can increase with increasing processing temperatures. Avoid temperatures over 260°C (500°F). Prolonged exposure to temperatures over 250°C (482°F) may cause resin decomposition.

Thermal Decomposition: Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant. Aldehydes are known irritants. In addition, some aldehydes are skin sensitizers and/or probable carcinogens. Acute overexposure to the decomposition products may result in headache, nausea and irritation of the eyes, skin and respiratory tract. Benzene is a known human carcinogen which may cause various blood disorders including anemia and leukemia. Effects of chronic exposure may be delayed. Benzene is included in the IARC, NTP and OSHA lists of carcinogens. Benzene has been shown to cause embryofetal toxicity and birth defects in laboratory animals, but only at doses which also cause maternal toxicity. There is no information available with respect to possible developmental effects in humans. Local exhaust ventilation is recommended for control of airborne dust, fumes and vapor.

Thermal Decomposition Products

- Carbon monoxide
- Carbon dioxide
- Aldehydes
- Other Organic Vapor
- Benzene

10.2 HAZARDOUS POLYMERIZATION Will Not Occur.

10.3 INHIBITORS/STABILIZERS Not applicable.

11. TOXICOLOGICAL INFORMATION

The following information is based on published toxicity data for associated base polymers (ethene homopolymer, 1-butene polymer with ethene, and 1-hexene polymer with ethene). These data were not produced by Union Carbide Corporation.

ACUTE TOXICITY

Peroral

Rat; Lethal Dose = > 7.95 g/kg; no effects

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Peroral

Mouse; Lethal Dose = > 7.0 g/kg

Inhalation

Variable Dust Concentration Studies, 0.5 h; Mouse; LC50 = 12000 mg/m³

IRRITATION

Skin: Pellets or granules may cause abrasion or other mechanical irritation.

Eye: May cause irritation.

REPEATED EXPOSURE

Inclusion of 1-butene polymer with ethene in the diet of rats for 90 days at 5% or less caused no adverse effects.

SENSITIZATION (ANIMAL AND HUMAN STUDIES)

Polyethylene is not considered to be a skin sensitizer.

CHRONIC TOXICITY AND CARCINOGENICITY

According to published data, inclusion of polyethylene in the diet of rats at 8 g/kg/day did not result in treatment-related effects. Polyethylene implanted into rats and mice has reportedly caused local tumorigenic activity at doses of 33 to 2120 mg/kg, but the relevance to human exposure is not certain. There has been extensive use of polyethylene in industry and medicine.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

Degradation of this polyethylene product is not anticipated under environmental exposure conditions.

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12.2 ECOTOXICITY

Information may be available, call Union Carbide.

12.3 FURTHER INFORMATION

None.

13. DISPOSAL CONSIDERATIONS

13.1 WASTE DISPOSAL METHOD

Dispose in accordance with all applicable Federal, State, and local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

13.2 DISPOSAL CONSIDERATIONS

When disposed of, this product is not considered a RCRA hazardous waste.

Disposal methods identified are for the product as sold. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permissible under applicable rules, regulations and/or laws governing your location.

14. TRANSPORT INFORMATION

14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

BULK

Proper Shipping Name : NOT REGULATED

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This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 SECTION 103 (CERCLA)

The following components of this product are specifically listed as hazardous substances in 40 CFR 302.4 (unlisted hazardous substances are not identified) and are present at levels which could require reporting:

Because no constituents of the polyethylene resin are released to the environment under normal conditions of use and processing, the resin and its constituents are not subject to the emergency release reporting provisions of Section 103 of CERCLA or Section 304 of SARA Title III (EPCRA).

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 302 AND 304

The following components of this product are listed as extremely hazardous substances in 40 CFR Part 355 and are present at levels which could require reporting and emergency planning:

None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTION 313

The following components of this product are listed as toxic chemicals in 40 CFR 372.65 and are present at levels which could require reporting and customer notification under Section 313 and 40 CFR Part 372:

- This product does not contain toxic chemicals at levels which require reporting under the statute.

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SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 311 AND 312

Delayed Hazard : No
Fire Hazard : No
Immediate Health Hazard : No
Reactive Hazard : No
Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)

This product is subject to the Worker and Community Right-to-Know Act. The following components of this product are at levels which could require identification in the MSDS:
None.

MASSACHUSETTS (HAZARDOUS SUBSTANCES DISCLOSURE BY EMPLOYERS)

The following components of this product appear on the Massachusetts Substance List and are present at levels which could require identification in the MSDS:
None.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

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16. OTHER INFORMATION

16.1 AVAILABLE LITERATURE AND BROCHURES

Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

Read and understand Union Carbide's "Polyethylene Handling and Storage Guide" prior to handling.

16.2 SPECIFIC HAZARD RATING SYSTEM

Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 2.0

Revision: 06/19/2000

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

16.5 LEGEND

A	Asphyxiant
Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
HMIS	Hazardous Materials Information System
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer

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P	Peroxide Former
R	Reactivity
TS	Trade Secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

The opinions expressed herein are those of qualified experts within Union Carbide. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of the use of the product are not under the control of Union Carbide, it is the user's obligation to determine conditions of safe use of the product.