

**UNIROYAL
CHEMICAL**

Material Safety Data Sheet

Uniroyal Chemical Company, Inc.
World Headquarters
Middlebury, CT 06749UNIROYAL Emergency Phone: (203) 723-3670
CHEMTREC Transportation Emergency Phone: 1-800-424-9300
SAFETY DATA Information (203) 573-3303MSDS No. C266001Date Issued: 8/5/85
Date Revised 8/25/87

R-1

IDENTIFICATION

Trade Name: **NAUGARD® 445**CAS Number: **10081-67-1**Chemical Name: **4,4' Di(α,α - dimethylbenzyl)
diphenylamine**Chemical Family: **Aromatic Amine**

SPECIAL REGULATORY HAZARDS

<u>Ingredient</u>	<u>CAS No.</u>	<u>Exposure Limit</u>	<u>OSHA (1910.1200)</u>	<u>EEC*</u>
Product	10081-67-1	ND	Not hazardous	Not hazardous

Hazard assessment based on available data.

Transportation: **NA**

PHYSICAL DATA

Appearance and Odor: **White to off-white powder; characteristic odor**Solubility: **Insoluble in water**
Soluble in most organic compoundsSpecific Gravity ($H_2O = 1$): **1.14**Melting Point: **203°F (95°C)**Vapor Pressure @ 20°C: **ND**Boiling Point: **NA**Vapor Density (Air = 1): **ND**Other Data: **NA**Volatility @ 70°F: **Low**

FIRE AND EXPLOSION HAZARD DATA

Flash Point: **531°F (276.7°C) TCC**Autoignition Temp: **569°F (298°C) Fire point**Extinguishing Media: **Water spray, dry chemical**Flammable Limits: **ND**Special Fire Fighting Procedures: **Protect against inhalation of combustion products.**Unusual Hazards: **May form explosive dust-air mixtures.**

REACTIVITY DATA

Stability: **Stable at ambient temperatures and pressures.**Incompatibility: **Strong oxidizing agents.**Decomposition Products: **Oxides of carbon and nitrogen under burning conditions.**DO 086361
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NA = Not Applicable

ND = Not Determined

*European Economic Community

Uniroyal makes no representation or warranty with respect to the information in this Material Safety Data Sheet. The information is however, as of this date provided, true and accurate to the best of Uniroyal's knowledge. This list of information is not intended to be all inclusive. Actual conditions of use and handling may require considerations of information other than, or in addition to, that which is provided herein.

SPECIAL PROTECTION INFORMATION

Engineering Controls: Sufficient ventilation to minimize dust exposure. Protect closed handling systems against possible dust explosions. Avoid dust accumulation on building or equipment surfaces.

Personal Protection Equipment: Avoid all personal contact. Observe good personal hygiene. Impervious gloves and goggles should be worn when handling. In the absence of adequate ventilation, use NIOSH-certified dust cartridge respirator.

STORAGE, SPILLS AND DISPOSAL INFORMATION

Storage: Store away from sources of direct heat in a dry area. Keep containers closed when not in use.

Spills: Sweep or vacuum up. Shovel into secure containers for proper disposal. Avoid creating dust. Use personal protective equipment as outlined above.

Disposal: In accordance with any applicable local, state, or federal regulation regarding organic waste.

Environmental Information: Environmental effects have not been determined.

HEALTH RELATED DATA

Specific Hazard(s): No acute or chronic health hazards have been identified. There are no known medical conditions aggravated by exposure to this material.

Primary Route(s) of Entry: Inhalation, skin absorption.

First Aid Procedures: **Eye contact:** Flush with water for 15 minutes.

Skin contact: Wash thoroughly with soap and water

Inhalation: Remove to fresh air.

Toxicology Information: **Oral toxicity:** LD50 (rats) - > 10 g/kg

Irritation: eye (rabbits) - negative
skin (rabbits) - negative

Mutagenicity: Ames *Salmonella* - negative

No significant adverse effects have been noted with long-term production and use of this material.

Carcinogenic per NTP _____ IARC _____ OSHA _____ None X

R. T. VANDERBILT COMPANY, INC.
Industrial Minerals and Chemicals
30 Winfield Street
Norwalk, CT 06855
(203) 853-1400 TWX 710-468-2940

* MATERIAL *
* SAFETY *
* DATA SHEET *

Customer Info:

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Date: 06/17/87

Revised: 06/25/86

Supersedes: 11/28/81

I. PRODUCT IDENTIFICATION

F14503

Trade Name: DISPERSED SULFUR

Chemical Name: Sulfur dispersion

Synonyms: N/A

Hazardous Ingredients/OSHA: N/A

Hazard: N/A

Carcinogenic Ingredients/OSHA/NTP/IARC: N/A

II. WARNING STATEMENTS

None

III. PHYSICAL AND CHEMICAL DATA

Appearance and Odor: Yellow aqueous dispersion

Density, at 25 deg C, Mg/cu m: 1.51

Solubility in Water: N/A

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(* - Registered in U.S. Patent and Trademark Office)

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us.

IV. FIRE PROTECTION

Flash Point (deg C/deg F): N/A - Product is an aqueous solution.

Extinguishing Media: On solids, water

Special Firefighting Procedure: Self-contained breathing apparatus

Unusual Fire Hazard: None known

V. REACTIVITY DATA

Thermal Stability: Stable

Materials to Avoid: Strong oxidizers

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: May form sulfur dioxide and hydrogen sulfide when heated

VI. HEALTH HAZARD DATA

Exposure Limits: None established

Effects of Overexposure: Not known

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VII. PHYSIOLOGICAL EFFECTS SUMMARY

Not available for product

VIII. PRECAUTIONS FOR SAFE HANDLING

Keep from freezing

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IX. PROTECTION AND CONTROL MEASURES

Protective Equipment: Goggles, rubber gloves

Respiratory Protection: N/A

Ventilation: Effective ventilation to draw fumes and vapors away from workers to prevent routine inhalation

X. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: Flush eyes with water for at least 15 minutes

Skin Contact: Wash affected area with soap and water

Inhalation: Remove to fresh air. Keep warm and quiet.

Ingestion: Seek medical attention immediately

XI. SPILL AND DISPOSAL PROCEDURES

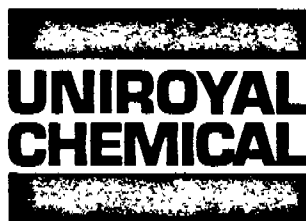
Spill or Leakage Procedure: Absorb on inert material. Transfer to a closed container for disposal.

Waste Disposal: Not an RCRA waste. As for organic chemicals according to applicable government regulations.

For Additional Information Contact:

Environmental Affairs
R. T. VANDERBILT CO., INC.
30 Winfield Street
P.O. Box 5150
Norwalk, CT 06856
Tel. No.: (203) 853-1400

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Material Safety Data Sheet

Uniroyal Chemical Company, Inc.
World Headquarters
Middlebury, CT 06749

UNIROYAL Emergency Phone: (203) 723-3670
CHEMTREC Transportation Emergency Phone: 1-800-424-9300
SAFETY DATA Information (203) 573-3303

MSDS No. C269004

Date Issued: 9/12/85

Date Revised: 5/22/89

R-1

IDENTIFICATION

Trade Name: NAUGARD® BHT

CAS Number: 128-37-0

Chemical Name: 2,6-di-tert-butyl-p-cresol

Chemical Family: Cresol

SPECIAL REGULATORY HAZARDS

<u>Ingredient</u>	<u>CAS No.</u>	<u>Exposure Limit</u>	<u>OSHA (1910.1200)</u>	<u>EEC*</u>
Product	128-37-0	10 mg/m ³ (OSHA, ACGIH)	Not hazardous	Not hazardous

Hazard assessment based on available data.

Transportation: NA

PHYSICAL DATA

Appearance and Odor: White crystal; characteristic (cresylic) odor

Solubility: Solubility in water: 0.4 mg/liter
Soluble in hydrocarbon solvents

Melting Point: 156°F (69.4°C)

Boiling Point: 509°F (265°C)

Other Data: NA

Specific Gravity (H₂O = 1): 1.05

Vapor Pressure @ 20°C: 0.01 mm Hg

Vapor Density (Air = 1): 7.6

Volatility @ 70°F: Low

FIRE AND EXPLOSION HAZARD DATA

Flash Point: 261°F (130°C) CC

Autoignition Temp: 878°F (470°C) dust cloud

Extinguishing Media: Water spray, dry chemical

Flammable Limits: 0.02 oz./ft³

Special Fire Fighting Procedures: Protect against inhalation of combustion products.

Unusual Hazards: May form explosive dust-air mixtures.

REACTIVITY DATA

Stability: Stable at ambient temperatures and pressures.

Incompatibility: Strong oxidizing agents.

Decomposition Products: Oxides of carbon under burning conditions.

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ND = Not Determined

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SPECIAL PROTECTION INFORMATION

Engineering Controls: Sufficient ventilation to minimize dust and/or vapor exposure. Protect closed dust handling systems against possible dust explosions. Avoid dust accumulation on building or equipment surfaces.

Personal Protection Equipment: Avoid all personal contact. Observe good personal hygiene. Impervious gloves and goggles should be worn when handling. In the absence of adequate ventilation, use NIOSH-certified respiratory protection for dust and/or organic vapors.

STORAGE, SPILLS AND DISPOSAL INFORMATION

Storage: Store away from sources of direct heat and moisture. Keep containers closed when not in use.

Spills: Sweep or vacuum up. Shovel into secure containers for proper disposal. Avoid creating dust. Use personal protective equipment as outlined above.

Disposal: In accordance with any applicable local, state, or federal regulation regarding organic waste.

Environmental Information: Environmental effects have not been determined.

HEALTH RELATED DATA

Specific Hazard(s): Contact with eyes or skin may cause irritation. Repeated minimal contact with skin may cause sensitization.

Primary Route(s) of Entry: No specific route.

First Aid Procedures: **Eye contact:** Flush with water for 15 minutes. Get medical attention.

Skin contact: Wash thoroughly with soap and water

Inhalation: Remove to fresh air.

Toxicology Information: **Oral toxicity:** LD₅₀ (rats) - >2 g/kg

Irritation: eye (rabbits) - slight
skin (rabbits) - slight

Sensitization: skin - slightly positive based on human experience

Mutagenicity: Ames *Salmonella* - negative

Chronic: The feeding to rats and mice of 3000 or 6000 ppm for two years did not produce an increased tumor incidence.

Teratogenicity: The feeding to pregnant mice of up to 800 mg/kg/day from day 6-13 of gestation did not produce teratogenicity.

Carcinogenic per NTP _____ IARC _____ OSHA _____ None X

NAUGARD® BHT

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MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor as "Essentially Similar" to Form OSHA-20)

MSDS OR 616 A
DATE 3/29/83

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I. PRODUCT IDENTIFICATION

CHEMICAL NAME AND SYNONYMS	Dicumyl peroxide supported on precipitated calcium carbonate	REGULAR TELEPHONE NO. 302-575-5000 EMERGENCY TELEPHONE NO. 302-995-3000*
CHEMICAL FAMILY	Organic peroxide	CAS NO. 80-43-3 and 471-34-1
FORMULA	NA	MOLECULAR WEIGHT --
TRADE NAME AND SYNONYMS	DI-CUP® 40C	

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV-TWA VALUES ADOPTED BY ACGIH 1981
Dicumyl peroxide	40	Not established

III. PHYSICAL DATA

BOILING POINT, 760 mm Hg	NA - Decomposes	FREEZING POINT	NA
VAPOR PRESSURE @	Not determined	BULK DENSITY	418 kg/m ³ (26 lb/ft ³)
VAPOR DENSITY (AIR=1)	NA	PERCENT VOLATILE BY VOLUME (%)	Negligible at 20°C(68°F)
SOLUBILITY IN WATER, % BY WEIGHT @	Negligible	EVAPORATION RATE (BUTYL ACETATE=1)	<1
APPEARANCE AND ODOR: Free-flowing, off-white powder; acrid, fruity odor.		pH	NA

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT 120°C (225°F) SETA-CC (TEST METHOD)	AUTOIGNITION TEMPERATURE	Not determined
FLAMMABLE LIMITS IN AIR PERCENT BY VOLUME	LOWER Not determined	UPPER Not determined
EXTINGUISHING MEDIA: Water spray, dry chemical, foam, or carbon dioxide.		

SPECIAL FIRE-FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable dust when finely divided and suspended in air. See SECTION VI - REACTIVITY DATA.

NOTES: This product in fiberboard containers of up to 100 lbs. each maximum can be considered as a Class V Peroxide in accordance with Factory Mutual Loss Prevention Data Sheets 7-80. Class V Peroxides present a low or negligible fire hazard. With these peroxides combustible packing materials may present a greater hazard than the peroxide itself.

NA = NOT APPLICABLE

*Use this emergency number only after normal business hours and only for emergencies involving safety and health.

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We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combination for their own purposes. Unless otherwise agreed in writing, we sell the products without warranty, and buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of our products, whether used alone or in combination with other products.

HERCULES INCORPORATED • WILMINGTON, DELAWARE 19899

V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Not established. See Section II.

EFFECTS OF OVEREXPOSURE: Mild eye, skin, and respiratory irritation. Decomposition products and fumes from vulcanization and crosslinking operations may cause eye, skin, and respiratory irritation and be skin sensitizers. See Hercules Bulletin ORC-204 for summary of toxicological investigations.

EMERGENCY AND FIRST AID PROCEDURES:

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

SKIN: Wash thoroughly with soap and running water. Wash clothing before reuse.

INHALATION: Remove to fresh air and, if indicated, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician. Treat symptomatically.

VI. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID: Stable at room temperatures. Avoid temperatures above 55°C (131°F) or contact with materials listed below. Higher temperatures or contact with listed materials promote exothermic decomposition.
UNSTABLE		
STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID): Acids and acidic-type materials such as Friedel-Crafts catalysts, strong oxidizing and reducing agents, and oxidation catalysts. Copper, copper alloys, lead and iron.

HAZARDOUS DECOMPOSITION PRODUCTS: Acetophenone, cumyl alcohol, α -methyl styrene, methane, and ethane. Under acidic decomposition conditions, phenols may also be formed. Combustion products include CO, CO₂, and generation of smoke.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID: None
	WILL NOT OCCUR	X	

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: If material is not contaminated, scoop into clean containers for use. If contaminated, scoop into clean containers for disposal.

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state, and Federal regulations.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)		Nuisance dust respirator approved by NIOSH/MSHA if airborne dust is not adequately controlled. Use self-contained breathing apparatus in excessive fumes from product decomposition.		
VENTILATION	LOCAL EXHAUST	--	SPECIAL	--
	MECHANICAL (GENERAL)	--	OTHER	Use adequate ventilation.
PROTECTIVE GLOVES: Chemical resistant			EYE PROTECTION: Safety glasses	
OTHER PROTECTIVE EQUIPMENT: --				

V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Not established. See Section II.

EFFECTS OF OVEREXPOSURE: Mild eye, skin, and respiratory irritation. Decomposition products and fumes from vulcanization and crosslinking operations may cause eye, skin, and respiratory irritation and be skin sensitizers. See Hercules Bulletin ORC-204 for summary of toxicological investigations.

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INHALATION: Remove to fresh air and, if indicated, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician. Treat symptomatically.

VI. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID: Stable at room temperatures. Avoid temperatures above 55°C (131°F) or contact with materials listed below. Higher temperatures or contact with listed materials promote exothermic decomposition.
UNSTABLE		
STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID): Acids and acidic-type materials such as Friedel-Crafts catalysts, strong oxidizing and reducing agents, and oxidation catalysts. Copper, copper alloys, lead and iron.

HAZARDOUS DECOMPOSITION PRODUCTS: Acetophenone, cumyl alcohol, α -methyl styrene, methane, and ethane. Under acidic decomposition conditions, phenols may also be formed. Combustion products include CO, CO₂, and generation of smoke.

HAZARDOUS	MAY OCCUR		CONDITIONS TO AVOID: None
POLYMERIZATION	WILL NOT OCCUR	X	

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: If material is not contaminated, scoop into clean containers for use. If contaminated, scoop into clean containers for disposal.

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RESPIRATORY PROTECTION (SPECIFY TYPE)		Nuisance dust respirator approved by NIOSH/MSHA if airborne dust is not adequately controlled. Use self-contained breathing apparatus in excessive fumes from product decomposition.	
VENTILATION	LOCAL EXHAUST	--	SPECIAL --
	MECHANICAL (GENERAL)	--	OTHER Use adequate ventilation.
PROTECTIVE GLOVES: Chemical resistant			EYE PROTECTION: Safety glasses
OTHER PROTECTIVE EQUIPMENT: --			



MATERIAL SAFETY DATA SHEET

MSDS OR 616A

DATE 3/29/83

TRADE NAME DI-CUP® 40C

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IX SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING

DANGER!

HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION.

PRODUCT MAY CAUSE EYE, SKIN, AND RESPIRATORY IRRITATION.

DECOMPOSITION PRODUCTS MAY CAUSE EYE, SKIN AND RESPIRATORY IRRITATION
AND MAY BE SKIN SENSITIZERS.

FLAMMABLE DUST WHEN FINELY DIVIDED AND SUSPENDED IN AIR.

Do not heat above 55°C (131°F) or permit contact with acids and acidic-type materials such as Friedel-Crafts catalysts, strong oxidizing and reducing agents, or oxidation catalysts. Higher temperatures or contact with these materials promote exothermic decomposition. Avoid contact with copper, copper alloy, lead, and iron as contact with these metals accelerates decomposition.

Avoid contact with eyes, skin, and clothing.

Avoid breathing dust or vapors of decomposition products

Use with adequate ventilation.

Wash thoroughly with soap and water after handling.

Keep away from heat, sparks, and open flame.

Clean spills promptly.

FIRST AID:

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

SKIN - Wash thoroughly with soap and running water.
Wash clothing before reuse.

INHALATION - Remove to fresh air and, if indicated, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
Treat symptomatically.

STORAGE: Store below 35°C (95°F) in original containers in a ventilated area out of direct sunlight and away from heat sources. Storage at higher temperatures risks melting of the Di-Cup and the formation of lumps and cakes.

SPILLS: If material is not contaminated, scoop into clean containers for use. If contaminated, scoop into clean containers for disposal. Disposal must be in accordance with local, state, and Federal regulations.