

25

M A T E R I A L S A F E T Y D A T A S H E E T	
CIBA-GEIGY CORPORATION PLASTICS & ADDITIVES DIVISION THREE SKYLINE DRIVE HAWTHORNE, NEW YORK 10532	EMERGENCY PHONE NUMBERS: SAFETY/HEALTH: (914) 347-4700 AFTER HOURS : (800) 334-9481

SECTION I-IDENTITY INFORMATION

IDENTITY (TRADE NAME): IRGANOX 565

FAMILY/CHEMICAL NAME:

4-((4,6-BIS(OCTYLTHIO)-S-TRIAZIN-2-YL)AMINO)-2,6-DI-TERT-BUTYLPHENOL, CAS REG. NO. 991-84-4

PRODUCT TYPE:

ANTIOXIDANT/STABILIZER.

IMPORTANT:

PLEASE NOTE: REVISION 07 - SECTION VII REVISED.

* THIS MATERIAL WILL NOT BE SOLD FOR USE IN PRODUCTS *
* FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES OR *
* ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS *
* SPECIFICALLY INTENDED. BECAUSE OF THE WIDE RANGE OF *
* SUCH POTENTIAL USES, CIBA-GEIGY CORPORATION IS NOT ABLE *
* TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR *
* SUCH USES AND ASSUMES NO LIABILITY FOR ANY SUCH USES. *

HAZARD STATEMENT :

* THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN *
* PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD *
* COMMUNICATION STANDARD 29 CFR 1910.1200. *
* THIS PRODUCT IS NOT CONSIDERED TO BE A HAZARDOUS *
* CHEMICAL UNDER THAT STANDARD. *

SECTION II-HAZARDOUS INGREDIENTS

NONE KNOWN

IRGANOX 565

DO 085141
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SECTION III-PHYSICAL DATA

APPEARANCE:
WHITE TO OFF-WHITE, CRYSTALLINE POWDER.
ODOR:
ODORLESS.
BOILING POINT:
NOT DETERMINED.
MELTING POINT:
91-96C
DECOMPOSITION TEMPERATURE:
>220C.
EVAPORATION RATE:
NOT APPLICABLE.
PERCENT VOLATILE:
< 0.5%.
VAPOR DENSITY:
NOT APPLICABLE.
VAPOR PRESSURE:
AT 20C, CA. 1×10^{-10} (MM HG)
SOLUBILITY IN WATER:
AT 20C, INSOLUBLE
PH:
NOT APPLICABLE.
SPECIFIC GRAVITY:
1.1 (H₂O = 1)

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:
545F (MARCUSSE)
FLAMMABLE LIMITS IN AIR-LOWER:
NOT DETERMINED.
FLAMMABLE LIMITS IN AIR-UPPER:
NOT DETERMINED.
NFPA CODE:
NONE.
EXTINGUISHING MEDIA:
CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER SPRAY.
FIRE FIGHTING PROCEDURES-SPECIAL:
USE SELF-CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
DECOMPOSITION AND COMBUSTION PRODUCTS MAY BE TOXIC.

SECTION V-REACTIVITY DATA

STABILITY:
STABLE.
INCOMPATIBILITY:
STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS:
THERMAL DECOMPOSITION AND BURNING MAY PRODUCE CARBON

MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES AND SULFUR OXIDES.
HAZARDOUS POLYMERIZATION:
WILL NOT OCCUR.

SECTION VI-HEALTH HAZARD DATA

PRIMARY ROUTES OF EXPOSURE:
DERMAL, INGESTION, AND INHALATION.
THRESHOLD LIMIT VALUE:
NONE ESTABLISHED.
ORAL LD50:
(RATS) >5000 MG/KG
DERMAL LD50:
(RABBITS) >2000 MG/KG
SKIN IRRITATION:
(RABBITS) MINIMAL (DRAIZE SCORE 0.1/8)
EYE IRRITATION:
(RABBITS) MINIMAL (DRAIZE SCORE 2.7/110)
SENSITIZATION:
(GUINEA PIGS) MILD SENSITIZER IN A MODIFIED MAXIMIZATION TEST
(3/20 ANIMALS POSITIVE).
RIPT (HUMANS) NOT A PRIMARY IRRITANT AND NO EVIDENCE OF
SENSITIZATION UNDER THE CONDITIONS OF THE STUDY; A 0.5%
SOLUTION IN DIMETHYL PHTHALATE WAS TESTED.
INHALATION LC50:
(RATS) >1 MG/L AIR FOR A 4-HOUR AEROSOL EXPOSURE WITH
94% OF PARTICLES <7 MICRONS.
TERATOGENICITY:
(RATS): NO EVIDENCE OF TERATOGENICITY OR OF SIGNIFICANT EFFECTS
ON EMBRYO-FETAL DEVELOPMENTS.
MUTAGENICITY:
AMES TEST: NEGATIVE
NUCLEUS ANOMALY TEST, CHINESE HAMSTERS: NO EVIDENCE OF
MUTAGENIC EFFECTS
SISTER CHROMATID EXCHANGE STUDY, CHINESE HAMSTERS: NO
INDICATION OF MUTAGENIC EFFECTS
CELL TRANSFORMATION ASSAY: NO TRANSFORMATIVE PROPERTIES
OBSERVED
SIGNS AND SYMPTOMS OF EXPOSURE-ACUTE:
NO IDENTIFIED HEALTH EFFECTS.
SIGNS AND SYMPTOMS OF EXPOSURE-CHRONIC:
NO IDENTIFIED HEALTH EFFECTS.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES-EYES:
FLUSH EYES WITH WATER FOR AT LEAST 15 MINUTES.
GET MEDICAL ATTENTION.
EMERGENCY AND FIRST AID PROCEDURES-SKIN:
WASH WITH MILD SOAP AND WATER.
EMERGENCY AND FIRST AID PROCEDURES-INGESTION:
IF CONSCIOUS, GIVE LARGE QUANTITIES OF WATER. GET
MEDICAL ATTENTION.
EMERGENCY AND FIRST AID PROCEDURES-INHALATION:

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REMOVE TO FRESH AIR.
EMERGENCY AND FIRST AID PROCEDURES-OTHER:
WASH CONTAMINATED CLOTHING PRIOR TO REUSE.

SECTION VII-SPILL OR LEAK PROCEDURES

SPILL PROCEDURES:

SWEEP OR VACUUM AND PLACE INTO CLOSABLE CONTAINER FOR
DISPOSAL. WEAR PROTECTIVE EQUIPMENT SPECIFIED BELOW.
THOROUGHLY FLUSH RESIDUE WITH WATER.

WASTE DISPOSAL METHODS:

DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL
REGULATIONS.

EFFLUENT DATA-BOD:

MODIFIED STURM TEST: NOT BIODEGRADABLE
AEROBIC SEWAGE OECD COUPLED UNITS TEST NO. 303A: AVERAGE
ELIMINATION MEASURED BY SPECIFIC ANALYSIS WAS 47.3% OF THE
INITIALLY MEASURED CONCENTRATION.

EFFLUENT DATA-COD:

2.41 G. COD/G.

FISH TOXICITY:

ZEBRA FISH, LC50 96 H: >100 PPM

INVERTEBRATE TOXICITY:

DAPHNIA MAGNA, EC50 24 H: >37 PPM

SECTION VIII-SPECIAL PROTECTION INFORMATION

VENTILATION:

USE LOCAL EXHAUST FOR DUSTY USE CONDITIONS.

PROTECTIVE GLOVES:

WEAR IMPERVIOUS GLOVES AS A STANDARD HANDLING PROCEDURE.

EYE PROTECTION:

WEAR SAFETY GLASSES OR GOGGLES TO PROTECT AGAINST DUST
PARTICLES.

RESPIRATORY PROTECTION:

USE NIOSH APPROVED DUST MASK, IF REQUIRED.

OTHER PROTECTIVE EQUIPMENT:

WEAR COVERALLS.

SECTION IX-SPECIAL PRECAUTIONS

HANDLING PRECAUTIONS:

IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICE, HANDLE WITH
CARE AND AVOID UNNECESSARY PERSONAL CONTACT. AVOID CONTACT
WITH EYES AND PROLONGED OR REPEATED SKIN CONTACT. AVOID
CONTINUOUS OR REPETITIVE BREATHING OF DUST. USE ONLY WITH
ADEQUATE VENTILATION. FOR INDUSTRIAL USE ONLY.

SHIPPING AND STORING PRECAUTIONS:

KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE AND DURING
TRANSPORT.

PERSONAL HYGIENE:

WASH THOROUGHLY AFTER HANDLING.

SECTION X- REGULATORY INFORMATION

DOT PROPER SHIPPING NAME:

NOT REGULATED AS A HAZARDOUS MATERIAL BY THE U.S. DEPT. OF
TRANSPORTATION (DOT) 49 CFR 172.101 HAZARDOUS MATERIALS
TABLE.

DOT CLASS:

NONE.

DOT NUMBER:

NONE.

RCRA STATUS:

NOT A HAZARDOUS WASTE UNDER RCRA (40 CFR 261).

CERCLA STATUS:

NOT LISTED.

TSCA INVENTORY STATUS:

CHEMICAL COMPONENTS LISTED ON TSCA INVENTORY.

ISSUE DATE: 06/03/86 REVISION: 07C

FOR FURTHER INFORMATION, PLEASE CONTACT: BRUCE SCHWEMMER

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE
BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE
OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH
RESPECT TO THE INFORMATION CONTAINED HEREIN.

PAGE 1

M A T E R I A L S A F E T Y D A T A S H E E T	
CIBA-GEIGY CORPORATION ADDITIVES DIVISION SEVEN SKYLINE DRIVE HAWTHORNE, NEW YORK 10532 (914) 347-4700	EMERGENCY PHONE NUMBER: (800) 888-8372

SECTION I-IDENTITY INFORMATION

IDENTITY (TRADE NAME): IRGANOX 1076

FAMILY/CHEMICAL NAME:
OCTADECYL 3,5-DI-TERT-BUTYL-4-HYDROXYHYDROCINNAMATE
(CAS REG. NO. 2082-79-3)
PRODUCT TYPE:
ANTIOXIDANT.
IMPORTANT:

PLEASE NOTE: REVISION 08 - SECTION IX REVISED.

* THIS MATERIAL WILL NOT BE SOLD FOR USE IN PRODUCTS *
* FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES OR *
* ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS *
* SPECIFICALLY INTENDED. BECAUSE OF THE WIDE RANGE OF *
* SUCH POTENTIAL USES, CIBA-GEIGY CORPORATION IS NOT ABLE *
* TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR *
* SUCH USES AND ASSUMES NO LIABILITY FOR ANY SUCH USES. *

HAZARD STATEMENT :

* THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN *
* PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD *
* COMMUNICATION STANDARD 29 CFR 1910.1200. *
* THIS PRODUCT IS NOT CONSIDERED TO BE A HAZARDOUS *
* CHEMICAL UNDER THAT STANDARD. *

SECTION II-HAZARDOUS INGREDIENTS

NONE KNOWN.

IRGANOX 1076

DO 085146
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PAGE 2

SECTION III-PHYSICAL DATA

APPEARANCE:
WHITE TO OFF-WHITE, CRYSTALLINE POWDER.
ODOR:
ODORLESS.
BOILING POINT:
NOT DETERMINED.
MELTING POINT:
50-55C
DECOMPOSITION TEMPERATURE:
>220C.
EVAPORATION RATE:
NOT APPLICABLE.
PERCENT VOLATILE:
<1
VAPOR DENSITY:
NOT APPLICABLE.
VAPOR PRESSURE:
AT 20C, CA. 2×10^{-9} (MM HG)
SOLUBILITY IN WATER:
AT 25C, INSOLUBLE
PH:
NOT APPLICABLE.
SPECIFIC GRAVITY:
CA. 1.02 (H₂O = 1)

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:
523F (MARCUSSON)
FLAMMABLE LIMITS IN AIR-LOWER:
NOT DETERMINED.
FLAMMABLE LIMITS IN AIR-UPPER:
NOT DETERMINED.
NFPA CODE:
NONE.
EXTINGUISHING MEDIA:
CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER SPRAY.
FIRE FIGHTING PROCEDURES-SPECIAL:
USE SELF-CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
THE PRODUCT CAN FORM AN EXPLOSIVE DUST/AIR MIXTURE. AVOID
DUST FORMATION AND CONTROL IGNITION SOURCES; EMPLOY GROUND-
ING, VENTING AND EXPLOSION RELIEF PROVISIONS IN ACCORD WITH
ACCEPTED ENGINEERING PRACTICES IN PROCESS OPERATIONS CAP-
ABLE OF GENERATING DUST AND/OR STATIC ELECTRICITY.

SECTION V-REACTIVITY DATA

STABILITY:
STABLE.

IRGANOX 1076

DO 085147
CONFIDENTIAL

PAGE 3

INCOMPATIBILITY:
STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS:
THERMAL DECOMPOSITION AND BURNING MAY PRODUCE CARBON
MONOXIDE AND CARBON DIOXIDE.
HAZARDOUS POLYMERIZATION:
WILL NOT OCCUR.

SECTION VI-HEALTH HAZARD DATA

PRIMARY ROUTES OF EXPOSURE:
DERMAL, INGESTION, AND INHALATION.
THRESHOLD LIMIT VALUE:
NONE ESTABLISHED.
ORAL LD50:
(RATS) >10,000 MG/KG
INTRAPERITONEAL LD50:
(RATS) >1000 MG/KG
DERMAL LD50:
(RABBITS) >2000 MG/KG
SKIN IRRITATION:
(RABBITS) MINIMAL (DRAIZE SCORE 0.95/8)
PHOTOOTOXICITY:
NEGATIVE.
EYE IRRITATION:
(RABBITS) MINIMAL (DRAIZE SCORE 4/110)
SENSITIZATION:
(GUINEA PIGS) CONSIDERED TO POSSESS NO SKIN SENSITIZING
POTENTIAL.
RIPT (HUMANS) IN 4 SEPARATE STUDIES, A TOTAL OF 3 OF 183
SUBJECTS EXHIBITED REACTIONS INDICATIVE OF SENSITIZATION;
CONCENTRATIONS RANGED FROM 25% IN PETROLATUM (25 SUBJECTS), 0.5%
IN DIMETHYL PHTHALATE (58 SUBJECTS), TO HEAT MATERIAL (100
SUBJECTS).
INHALATION LC50:
(RATS) >1.8 MG/L AIR FOR A 4-HOUR DUST EXPOSURE
WITH APPROX. 90% OF PARTICLES <7 MICRONS DIAMETER.
TERATOGENICITY:
(RATS) NO TERATOGENIC EFFECT SEEN.
(MICE) NO TERATOGENIC EFFECT SEEN.
MUTAGENICITY:
AMES TEST: NEGATIVE
DOMINANT LETHAL TEST (MOUSE): NO EVIDENCE OF A DOMINANT
LETHAL EFFECT.
SIGNS AND SYMPTOMS OF EXPOSURE-ACUTE:
CAUTION!! MAY CAUSE IRRITATION TO SKIN, ESPECIALLY AFTER
PROLONGED OR REPEATED EXPOSURE, AND ESPECIALLY IN BODY
AREAS OF HEAVY PERSPIRATION, BASED UPON USE EXPERIENCE.
SIGNS AND SYMPTOMS OF EXPOSURE-CHRONIC:
NO IDENTIFIED HEALTH EFFECTS.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
SKIN CONDITIONS.
EMERGENCY AND FIRST AID PROCEDURES-EYES:

IRGANOX 1076

DO 085148
CONFIDENTIAL

PAGE 4

FLUSH EYES WITH WATER FOR AT LEAST 15 MINUTES.
GET MEDICAL ATTENTION.
EMERGENCY AND FIRST AID PROCEDURES-SKIN:
WASH WITH MILD SOAP AND WATER.
EMERGENCY AND FIRST AID PROCEDURES-INGESTION:
IF CONSCIOUS, GIVE LARGE QUANTITIES OF WATER. GET
MEDICAL ATTENTION.
EMERGENCY AND FIRST AID PROCEDURES-INHALATION:
REMOVE TO FRESH AIR.
EMERGENCY AND FIRST AID PROCEDURES-OTHER:
REMOVE AND WASH CONTAMINATED CLOTHING PRIOR TO REUSE.

SECTION VII-SPILL OR LEAK PROCEDURES

SPILL PROCEDURES:
PREWET MATERIAL WITH WATER TO AVOID DUST FORMATION. SWEEP
OR VACUUM AND PLACE IN CLOSABLE CONTAINER FOR DISPOSAL.
WEAR PROTECTIVE EQUIPMENT SPECIFIED BELOW. FLUSH RESIDUE
WITH WATER.
WASTE DISPOSAL METHODS:
INCINERATE IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTER-
BURNER AND SCRUBBER. FOLLOW ALL FEDERAL, STATE AND LOCAL
REGULATIONS.
EFFLUENT DATA-BOD:
(STURM TEST) PARTIALLY BIODEGRADABLE.
SEWAGE BACTERIAL TOXICITY:
INHIBITORY CONCENTRATION ON RESPIRATION OF AEROBIC WASTE WATER
BACTERIA: IC20, IC50, IC80 >100 PPM
FISH TOXICITY:
BLUEGILL LC 50 (96 HOURS): >100 PPM
RAINBOW TROUT LC 50 (96 HOURS): >100 PPM
INVERTEBRATE TOXICITY:
DAPHNIA MAGNA EC50 (24 HOURS): >100 PPM

SECTION VIII-SPECIAL PROTECTION INFORMATION

VENTILATION:
USE LOCAL EXHAUST. GOOD VENTILATION IS REQUIRED TO
PREVENT DUST BUILDUP WHICH MAY RESULT IN WORKER IRRITATION.
PROTECTIVE GLOVES:
WEAR RUBBER OR PLASTIC GLOVES.
EYE PROTECTION:
WEAR SAFETY GLASSES OR GOGGLES.
RESPIRATORY PROTECTION:
USE NIOSH APPROVED DUST MASK.
OTHER PROTECTIVE EQUIPMENT:
WEAR COVERALLS.

SECTION IX-SPECIAL PRECAUTIONS

HMS CODE:
HEALTH : 2 **FIRE : 1** **REACTIVITY : 0**
HANDLING PRECAUTIONS:

IRGANOX 1076

DO 085149
CONFIDENTIAL

PAGE 5

AVOID CONTACT WITH EYES AND PROLONGED OR REPEATED SKIN CONTACT. AVOID CONTINUOUS OR REPETITIVE BREATHING OF DUST. GOOD INDUSTRIAL ENGINEERING CONTROLS MUST BE EMPLOYED TO PREVENT EXCESS DUSTING IN THE WORK AREAS. DO NOT HANDLE IN SUCH A MANNER AS TO CAUSE EXCESSIVE DUSTING. USE ONLY WITH ADEQUATE VENTILATION. FOR INDUSTRIAL USE ONLY.

SHIPPING AND STORING PRECAUTIONS:

KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE AND DURING TRANSPORT.

PERSONAL HYGIENE:

WASH THOROUGHLY AFTER HANDLING.

SECTION X- REGULATORY INFORMATION

DOT PROPER SHIPPING NAME:

NOT REGULATED AS A HAZARDOUS MATERIAL BY THE U.S. DEPT. OF TRANSPORTATION (DOT) 49 CFR 172.101 HAZARDOUS MATERIALS TABLE.

DOT CLASS:

NONE.

DOT NUMBER:

NONE.

RCRA STATUS:

NOT A HAZARDOUS WASTE UNDER RCRA (40 CFR 261).

CERCLA STATUS:

NOT LISTED.

SARA/TITLE III - TOXIC CHEMICALS LIST:

THIS PRODUCT DOES NOT CONTAIN A TOXIC CHEMICAL FOR ROUTINE ANNUAL 'TOXIC CHEMICAL RELEASE REPORTING' UNDER SEC. 313 (40 CFR 372).

TSCA INVENTORY STATUS:

CHEMICAL COMPONENTS LISTED ON TSCA INVENTORY.

CALIFORNIA PROPOSITION 65:

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS CURRENTLY ON THE CALIFORNIA LIST OF KNOWN CARCINOGENS AND REPRODUCTIVE TOXINS.

MASSACHUSETTS RIGHT-TO-KNOW ACT:

CONTAINS NO COMPONENTS ON THE MASSACHUSETTS LIST AT A THRESHOLD LEVEL.

NEW JERSEY RIGHT-TO-KNOW LABELING INFORMATION:

THIS PRODUCT CONTAINS THE FOLLOWING :

CHEMICAL NAME : OCTADECYL 3,5-DI-TERT-BUTYL-4-HYDROXYHYDROCI
NNAMATE

CAS NUMBER : 2082-79-3

PENNSYLVANIA RIGHT-TO-KNOW ACT:

THE FOLLOWING IS REQUIRED COMPOSITION INFORMATION.

CHEMICAL NAME : BENZENEPROPANOIC ACID, 3,5-BIS(1,1-DIMETHYLE
THYL)-4-HYDROXY-, OCTADECYL ESTER

CAS NUMBER : 2082-79-3

COMMON NAME : OCTADECYL 3,5-DI-TERT-BUTYL-4-HYDROXYHYDROCI

IRGANOX 1076

DO 085150
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PAGE 6

COMMENTS NHAMATE; IRGANOX 1076
 : NOT ON PENNSYLVANIA HAZARDOUS SUBSTANCE LIST.
 * * *

ISSUE DATE: 04/05/90 REVISION: 09C
FOR FURTHER INFORMATION, PLEASE CONTACT: BRUCE SCHWEMMER

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE
BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE
OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH
RESPECT TO THE INFORMATION CONTAINED HEREIN.

IRGANOX 1076

DO 085151
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MATERIAL SAFETY
DATA SHEET

AMOCO RESIN 18-290

MSDS NO: 05001096

MANUFACTURER/SUPPLIER:
Amoco Chemical Company
200 East Randolph Drive
Chicago, Illinois 60601

EMERGENCY HEALTH INFORMATION: (800) 447-8735
EMERGENCY SPILL INFORMATION: (800) 424-9300
CHEMTREC, U.S.A.
OTHER PRODUCT SAFETY INFORMATION: (312) 856-3516

IMPORTANT COMPONENTS: Polyalphamethyl styrene (CAS 25014-31-7).
No exposure limit established.

WARNING STATEMENT: This product has been evaluated and does not require any hazard warning label under the OSHA Hazard Communication Standard.

HMIS/NFPA CODES: (HEALTH;0)(FLAMMABILITY;1)(REACTIVITY;0)

APPEARANCE AND ODOR: Odorless white pellets.

HEALTH HAZARD INFORMATION

EYE

EFFECT: No significant irritation expected other than possible mechanical irritation.

FIRST AID: Flush eyes with plenty of water. Get medical attention if irritation persists.

PROTECTION: Use dust goggles if high dust concentration is generated.

SKIN

EFFECT: No significant health hazards identified.

FIRST AID: Wash exposed skin with soap and water.

PROTECTION: None required; however, use of protective gloves/clothing is good industrial practice.

INHALATION

EFFECT: No significant health hazards identified.

FIRST AID: If adverse effects occur, remove to uncontaminated area. Get medical attention.

PROTECTION: None required; however, use of adequate ventilation is good industrial practice.

INGESTION

EFFECT: Expected to be relatively non-toxic.

FIRST AID: If a large amount is swallowed, get medical attention.

DO 085152
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FIRE AND EXPLOSION INFORMATION

FLASHPOINT: 475°F, (246°C) ASTM D1310

EXTINGUISHING MEDIA: Agents approved for Class A hazards (e.g., halogenated agents, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

REACTIVITY INFORMATION

DANGEROUS REACTIONS: None identified.

HAZARDOUS DECOMPOSITION: Polymerization will not occur. Incomplete burning can produce carbon monoxide, carbon dioxide, and other harmful products.

STABILITY: Stable.

CHEMICAL AND PHYSICAL PROPERTIES

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER = 1): 1.08

SOFTENING POINT: 286°F (141°C) ASTM E28

STORAGE AND ENVIRONMENTAL PROTECTION

STORAGE REQUIREMENTS: No special requirements.

SPILLS AND LEAKS: Contain and remove by mechanical means.

WASTE DISPOSAL: Disposal must be in accordance with applicable federal, state, or local regulations. Determine waste classification at time of disposal. Conditions of use may render the spent product a hazardous waste. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

TOXICOLOGICAL INFORMATION

INGESTION: Acute oral toxicity: LD50 greater than 5000 mg/kg (rats). No death or signs of toxicity were seen at 5000 mg/kg.

No component of this product is identified as a carcinogen by NTP, IARC or OSHA.

REGULATORY INFORMATION

CERCLA REPORTABLE QUANTITY:

This product is not reportable under 40 CFR Part 302.4.

DOT PROPER SHIPPING NAME: Not regulated.

DO 085153
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REGULATORY INFORMATION - CONTINUED

FDA STATUS: This product is approved for use by the FDA under the following sections(s) of 21 CFR:

Part 175.105 as a component of adhesives in food packaging when used in accordance with the specifications of this subpart.

Part 175.300 as a component of resinous and polymeric coatings for food contact surfaces when used in accordance with the specifications of this subpart.

Part 175.320 as a component of resinous and polymeric coatings of polyolefinic food contact surfaces when used in accordance with the specifications of this subpart.

Part 175.380 as a component of certain condensed epoxy resins for the coating of food contact surfaces when used in accordance with the specifications of this subpart.

Part 175.390 as a component of zinc-silicon dioxide matrix coatings of food contact surfaces when used in accordance with the specifications of this subpart.

Part 176.170 as a component of paper and paperboard in contact with aqueous and fatty foods when used in accordance with the specifications of this subpart.

Part 176.180 as a component of paper and paperboard in contact with dry food when used in accordance with the specifications of this subpart.

Part 177.1210 as a component of closures with sealing gaskets of food containers when used in accordance with the specifications of this subpart.

OSHA HAZARD COMMUNICATION STANDARD: Not hazardous per 29 CFR 1910.1200(d).

RCRA STATUS:
This product is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

SARA STATUS:
This product is not regulated under SARA Title III, 42 USC 9601.

TSCA STATUS: All of the components of this product are listed on the TSCA Inventory.

ISSUE INFORMATION

BY:



Richard A. Symuleski
Director, Product Safety

ISSUED: February 15, 1989
SUPERSEDES: June 21, 1988

DO 085154
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This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET



PRODUCT NAME: N,N,N',N',N'' Pentamethyldiethylenetriamine

#11395

CHEMICAL NATURE: Alkyl Amine

% ACTIVITY: 97+%

PHYSICAL DATA

BOILING POINT, 760 mm. Hg	198° - 199°C	FREEZE POINT	No Data
SPECIFIC GRAVITY	0.828	VAPOR PRESSURE AT 20°C.	No Data
VAPOR DENSITY	No Data	SOLUBILITY IN H ₂ O	Soluble
PER CENT VOLATILES BY WEIGHT	No Data	IONIC NATURE	Yes
APPEARANCE AND ODOR	Colorless to pale yellow liquid, strong ammoniacal odor		

HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
N,N,N',N',N'' Pentamethyldiethylenetriamine	97+%	Not Established

ACUTE TOX DATA: Oral-Rat: LD₅₀=1630 mg/kg
Skin - Rabbit: LDLO= 280 mg/kg

NIOSH/RTECS: 1979

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	218°F	AUTOIGNITION TEMPERATURE		No Data	
FLAMMABLE LIMITS IN AIR, % by volume		LOWER	N.D.	UPPER	N.D.
EXTINGUISHING MEDIA	Combustible Liquid. If involved in a fire, use water, carbon dioxide, dry chemical extinguishing agents, dry sand, or dry ground dolomite.				
SPECIAL FIRE FIGHTING PROCEDURES	If involved in a fire, wear NIOSH/MSHA approved self-contained breathing apparatus, flame & chemical resistant clothing; hats, boots & gloves. If without risk, remove material from fire area. Cool containers with water from maximum distance.				
USUAL FIRE AND EXPLOSION HAZARDS	No unusual hazards known.				

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6/81

THE BURDEN OF SAFE USE OF OUR MATERIALS MUST REST ENTIRELY WITH THE USER. WE CANNOT ASSUME RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ANY INFORMATION SUPPLIED BY US CONCERNING THE HAZARDS OR RECOMMENDED USE OF THE CHEMICALS.

HAZARD DATA

THRESHOLD LIMIT VALUE	Not Established
EFFECTS OF OVEREXPOSURE	Material can cause irritation & possible burns to skin & eyes. Ingestion may cause severe damage to gastr-intestinal tract. Inhalation can cause irritation & swelling.
EMERGENCY AND FIRST AID PROCEDURES	Remove from exposure. <u>Eyes</u> : Flush with copious amounts of water for at least 15 minutes. <u>Skin</u> : Remove contaminated clothing. Flush affected area with copious amounts of water for at least 15 minutes. In both above cases, seek prompt, competent medical attention. <u>Ingestion/Inhalation</u> : Seek prompt, competent medical attention.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	Avoid Incompatabilities
UNSTABLE	STABLE X		
INCOMPATIBILITY (materials to avoid)		Acids, moisture, carbon dioxide, non-ferrous metals.	
HAZARDOUS DECOMPOSITION PRODUCTS		No Data	
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID	Not Applicable
May Occur	Will not Occur X		
STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED		Wearing full respiratory protection & clothing. (See S c VII), stop leak if without risk. Cover spill with bisulfate & carefully place in a well-marked container. Submit or retain for disposal.	
WASTE DISPOSAL METHOD		Consult state, local, and federal regulations for proper disposal of Alkyl Amines.	

RESPIRATORY PROTECTION (specify type)		For ordinary use wear a NIOSH/MSHA approved high efficiency ammonia vapor-cartridge respirator & for emergency use, wear self-contained breathing apparatus.		
VENTILATION	LOCAL EXHAUST	Fume Hood	SPECIAL	Not Required
	MECHANICAL	Not Adequate	OTHER	
PROTECTIVE GLOVES		Butyl Rubber Neoprene or vinyl	EYE PROTECTION	Chemical safety goggles with full face shield.
OTHER PROTECTIVE EQUIPMENT		Lab coat&/or neoprene apron, boots, safety drench shower, eye wash capable of sustained flushing & hygienic washing facilities.		

PRECAUTIONARY LABELING	DANGER! Corrosive & causes severe burns & ulceration on contact with skin & eyes. Toxic upon ingestion & inhalation.	DO 085157 CONFIDENTIAL
OTHER HANDLING AND STORAGE CONDITIONS	Keep container tightly closed when not in use. Store in a cool, dry, well ventilated area. Wash thoroughly after use.	