

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 B 225

FAMILY/CHEMICAL NAME:

TETRAKIS(METHYLENE(3,5-DI-TERT-BUTYL-4-HYDROXYHYDROCINNAMATE))
METHANE CAS. REG. NO. 6683-19-8 AND TRIS(2,4-DI-TERT-
BUTYLPHENYL)PHOSPHITE CAS REG. NO. 31570-04-4 (IRGANOX 1010
AND IRGAFOS 168, 1:1 BLEND).

PRODUCT TYPE:

ANTIOXIDANT/STABILIZER.

IMPORTANT:

PLEASE NOTE: REVISION 05 - SECTION X 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

IRGANOX B 225

DO 086931
CONFIDENTIAL

NONE KNOWN

SECTION III-PHYSICAL DATA

APPEARANCE:
WHITE TO OFF-WHITE POWDER.
ODOR:
NO DISCERNABLE ODOR.
BOILING POINT:
NOT DETERMINED.
MELTING POINT:
110-125C IRGANOX 1010; 181-186C IRGAFOS 168.
DECOMPOSITION TEMPERATURE:
>220C.
EVAPORATION RATE:
NOT APPLICABLE.
PERCENT VOLATILE:
< 0.5%.
VAPOR DENSITY:
NOT APPLICABLE.
VAPOR PRESSURE:
AT 20C, CA. 1×10^{-12} IRGANOX 1010; 1×10^{-10} IRGAFOS 168 (MM HG)
SOLUBILITY IN WATER:
AT 20C, INSOLUBLE
PH:
NOT APPLICABLE.
SPECIFIC GRAVITY:
NOT DETERMINED.

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:
>302F (MARCUSSE)
FLAMMABLE LIMITS IN AIR-LOWER:
NOT DETERMINED.
FLAMMABLE LIMITS IN AIR-UPPER:
NOT DETERMINED.
NFPA CODE:
H1 F1 R0
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 GROUNDING, VENTING AND EXPLOSION RELIEF PROVISIONS IN ACCORD WITH ACCEPTED ENGINEERING PRACTICES IN PROCESS OPERATIONS CAPABLE OF GENERATING DUST AND/OR STATIC ELECTRICITY.

SECTION V-REACTIVITY DATA

STABILITY:

STABLE.

INCOMPATIBILITY:

STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION AND BURNING MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE, AND PHOSPHORUS 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 FOR BOTH COMPONENTS

INTRAPERITONEAL LD50:

(RATS) >2000 MG/KG FOR IRGAFOS 168

SKIN IRRITATION:

(RABBITS) NONE (DRAIZE SCORE 0/8) FOR BOTH COMPONENTS

EYE IRRITATION:

(RABBITS) NONE (DRAIZE SCORE 0/110) FOR BOTH COMPONENTS

SENSITIZATION:

(GUINEA PIGS) NO SENSITIZATION OBSERVED FOR IRGAFOS 168.

RIPT (HUMANS) NOT A PRIMARY IRRITANT AND NO EVIDENCE OF SENSITIZATION UNDER THE CONDITIONS OF THE STUDY FOR IRGANOX 1010.

INHALATION LC50:

(RATS) >46MG/L AIR FOR A 1-HOUR DUST EXPOSURE TO IRGANOX 1010.

IRGAFOS 168 NOT TESTED.

TERATOGENICITY:

(RATS AND MICE) NO TERATOGENIC EFFECTS (IRGANOX 1010).

(RABBITS) NO EVIDENCE OF TERATOGENICITY (IRGAFOS 168).

MUTAGENICITY:

IRGANOX 1010:

AMES TEST: NEGATIVE

DOMINANT LETHAL (MICE): NO EVIDENCE OF A DOMINANT LETHAL EFFECT.

NUCLEUS ANOMALY TEST (CHINESE HAMSTERS): NEGATIVE.

CHROMOSOME STUDIES IN SOMATIC CELLS (CHINESE HAMSTERS):
NEGATIVE.

IRGAFOS 168:

AMES TEST: NEGATIVE

CHROMOSOME STUDY, SPERMATOGONIA/SPERMATOCYTES (MOUSE): NO
EVIDENCE OF MUTAGENICITY.

SISTER CHROMATID EXCHANGE STUDY (CHINESE HAMSTER): NEGATIVE.

SACCHAROMYCES CEREVISIAE MP-1: NEGATIVE

CHROMOSOME STUDY IN SOMATIC CELLS (CHINESE HAMSTER): NEGATIVE.
DOMINANT LETHAL STUDY (MOUSE): NEGATIVE.

NEUROTOXICITY:

WHITE LEGHORN STRAIN: NO SIGNS OF NEUROTOXICITY FOR IRGAFOS 168.

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:

REMOVE TO FRESH AIR.

EMERGENCY AND FIRST AID PROCEDURES-OTHER:

WASH CONTAMINATED CLOTHING PRIOR TO REUSE.

SECTION VII-SPILL OR LEAK PROCEDURES

SPILL PROCEDURES:

SUCTION OR VACUUM AND PLACE INTO CLOSABLE CONTAINER FOR DISPOSAL. WEAR PROTECTIVE EQUIPMENT SPECIFIED BELOW. THOROUGHLY 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-COD:

2.38 G COD/G IRGANOX 1010

FISH TOXICITY:

IRGANOX 1010: ZEBRA FISH, LC50 96 H: >100 PPM

IRGAFOS 168: ZEBRA FISH, LC50 96 H: 4.05 PPM

GOLDEN ORFE, LC50 96 H: 42 PPM

RAINBOW TROUT, LC50 96 H: 49 PPM

CARP, LC50 96 H: 66 PPM

CATFISH, LC50 96 H: 70 PPM

BLUEGILL, LC50 96 H: 84 PPM

INVERTEBRATE TOXICITY:

DAPHNIA MAGNA, EC50 24 H: >86 PPM FOR IRGANOX 1010

SECTION VIII-SPECIAL PROTECTION INFORMATION

VENTILATION:

USE LOCAL EXHAUST.

PROTECTIVE GLOVES:

WEAR 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

HMIS CODE:

HEALTH : 1

FIRE : 1

REACTIVITY : 0

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.

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.

NEW JERSEY RIGHT-TO-KNOW LABELING INFORMATION:

THIS PRODUCT CONTAINS THE FOLLOWING :

CHEMICAL NAME : TRIS(2,4-DI-TERT-BUTYLPHENYL)PHOSPHITE

CAS NUMBER : 31570-04-4

CHEMICAL NAME : TETRAKIS(METHYLENE(3,5-DI-TERT-BUTYL-4-HYDRO
OXYHYDROCINNAMATE)) METHANE
CAS NUMBER : 6683-19-8

CHEMICAL NAME : PENTAERYTHRITOL TRIS ESTER WITH 3-(3,5-DI-TE
RT-BUTYL-4-HYDROXYPHENYL)PROPIONIC ACID
CAS NUMBER : 84633-54-5
PERCENT : IMPURITY

PENNSYLVANIA RIGHT-TO-KNOW ACT:
THE FOLLOWING IS REQUIRED COMPOSITION INFORMATION.

CHEMICAL NAME : PHENOL, 2,4-BIS(1,1-DIMETHYLETHYL)-, PHOSPHI
TE (3:1)
CAS NUMBER : 31570-04-4
COMMON NAME : TRIS(2,4-DI-TERT-BUTYLPHENYL)PHOSPHITE; IRGAFOS
168
COMMENTS : NOT ON PENNSYLVANIA HAZARDOUS SUBSTANCE LIST.

CHEMICAL NAME : BENZENEPROPANOIC ACID, 3,5-BIS(1,1-DIMETHYLE
THYL)-4-HYDROXY-, 2,2-BIS({3-{3,5-BIS(1,1-DI
METHYLETHYL)-4-HYDROXYPHENYL}-1-OXOPROPOXY}M
ETHYL)-1,3-PROPANEDIYL ESTER
CAS NUMBER : 6683-19-8
COMMON NAME : TETRAKIS(METHYLENE(3,5-DI-TERT-BUTYL-4-HYDRO
XYHYDROCINNAMATE))METHANE; 3,5-DI-TERT-BUTYL-4-H
YDROXYHYDROCINNAMIC ACID, NEOPENTANETETRAYL ESTE
R; PENTAERYTHRITOL TETRAKIS(3,5-DI-TERT-BUTYL-4-
HYDROXYHYDROCINNAMATE); IRGANOX 1010
COMMENTS : NOT ON PENNSYLVANIA HAZARDOUS SUBSTANCE LIST.

ISSUE DATE: 04/05/90 REVISION: 07C ISSUED BY: B. SCHWEMMER
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.