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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 44008

NAME: 2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride

SYNONYMS:

24 HOUR EMERGENCY TELEPHONE: (800) 535-5053(USA)
352-323-3500 (INTERNATIONAL)

TO REQUEST AN MSDS: (800) 869-9290

CUSTOMER SERVICE: (630) 766-2112

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

FLAMMABLE SOLIDS (CATEGORY 2), H228

SKIN CORROSION/IRRITATION (CATEGORY 2), H315

EYE DAMAGE/IRRITATION (CATEGORY 2A), H319

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

**GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS
PICTOGRAM**



SIGNAL WORD WARNING

HAZARD STATEMENT(S)

H228 FLAMMABLE SOLID.
H315 CAUSES SKIN IRRITATION.
H319 CAUSES SERIOUS EYE IRRITATION.

PRECAUTIONARY STATEMENT(S)

P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. NO SMOKING.
P240 GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT.
P241 USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING EQUIPMENT.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P280 WEAR PROTECTIVE GLOVES/ EYE PROTECTION/ FACE PROTECTION.
P302 + P352 IF ON SKIN: WASH WITH PLENTY OF SOAP AND WATER.
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.
P332 + P313 IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/ ATTENTION.
P337 + P313 IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ ATTENTION.
P362 TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE REUSE.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: C₁₉H₁₃ClN₆O₄
MW: 424.8
CAS-NO. 69231-13-6
PURITY: ≥ 98% (Assay by titration)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride		
	-	-

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE	CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.MOVE OUT OF DANGEROUS AREA.
IF INHALED	REMOVE VICTIM TO FRESH AIR AND KEEP AT REST IN A POSITION COMFORTABLE FOR BREATHING. GET MEDICAL ADVICE/ATTENTION IF YOU FEEL UNWELL.
IN CASE OF SKIN CONTACT	REMOVE/TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. GENTLY WASH WITH PLENTY OF SOAP AND WATER. IF SKIN IRRITATION OR RASH OCCURS: GET MEDICAL ADVICE/ATTENTION.
IN CASE OF EYE CONTACT	RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ATTENTION.
IF SWALLOWED	GET MEDICAL ADVICE/ATTENTION IF YOU FEEL UNWELL. RINSE MOUTH.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	ACUTE: REDNESS. THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11.
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	DRY CHEMICAL, FOAM, WATER SPRAY, CARBON DIOXIDE.
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON OXIDES NITROGEN OXIDES HALOGENATED COMPOUNDS

**ADVICE FOR
FIREFIGHTERS**

WEAR SELF-CONTAINED BREATHING APPARATUS IF POSSIBLE.
COMBAT FIRE FROM A SHELTERED POSITION.

FURTHER INFORMATION

WARNING: HIGHLY TOXIC HCL GAS IS PRODUCED DURING COMBUSTION.
EXPLOSION RISK IN CASE OF FIRE. FIGHT FIRE REMOTELY DUE TO THE RISK OF EXPLOSION. TAKE CARE AS IT MAY DECOMPOSE UPON COMBUSTION OR IN HIGH TEMPERATURES TO GENERATE POISONOUS FUME.

SECTION 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL
PRECAUTIONS,
PROTECTIVE
EQUIPMENT AND
EMERGENCY
PROCEDURES**

USE PERSONAL PROTECTIVE EQUIPMENT. KEEP PEOPLE AWAY FROM AND UPWIND OF SPILL/LEAK. ENTRY TO NON-INVOLVED PERSONNEL SHOULD BE CONTROLLED AROUND THE LEAKAGE AREA BY ROPING OFF, ETC.

**ENVIRONMENTAL
PRECAUTIONS**

PREVENT PRODUCT FROM ENTERING DRAINS.

**METHODS AND
MATERIALS FOR
CONTAINMENT AND
CLEANING UP**

SWEEP DUST TO COLLECT IT INTO AN AIRTIGHT CONTAINER, TAKING CARE NOT TO DISPERSE IT. ADHERED OR COLLECTED MATERIAL SHOULD BE PROMPTLY DISPOSED OF, IN ACCORDANCE WITH APPROPRIATE LAWS AND REGULATIONS.

**REFERENCE TO OTHER
SECTIONS**

FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

**PRECAUTIONS FOR SAFE
HANDLING**

HANDLING IS PERFORMED IN A WELL VENTILATED PLACE. WEAR SUITABLE PROTECTIVE EQUIPMENT. BE CAREFUL NOT TO CAUSE LEAKAGE, OVERFLOW, OR DISPERSION. STEAM SHOULD NOT BE GENERATED UNNECESSARILY. KEEP AWAY FROM HEAT/SPARK /OPEN FLAME/HOT SURFACES. -NO SMOKING. TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. USE EXPLOSION-PROOF EQUIPMENT. AVOID SHOCK AND FRICTION. WASH HANDS AND FACE BEFORE BREAKS AND IMMEDIATELY AFTER HANDLING THE PRODUCT.

USE A LOCAL EXHAUST IF DUST OR AEROSOL WILL BE GENERATED.
AVOID CONTACT WITH SKIN, EYES AND CLOTHING.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL AND DARK PLACE.
STORE UNDER INERT GAS. PROTECT FROM MOISTURE. BE SURE NOT TO GIVE THE CONTAINER UNEXPECTED IMPACTS, SUCH AS FALLING DOWN OR FALLING OFF. STORE AWAY FROM INCOMPATIBLE MATERIALS SUCH AS OXIDIZING AGENTS.
LIGHT-SENSITIVE HYGROSCOPIC

Store at RT

SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS

FOLLOW SAFE INDUSTRIAL ENGINEERING/LABORATORY PRACTICES WHEN HANDLING ANY CHEMICAL. INSTALL A CLOSED SYSTEM OR LOCAL EXHAUST. ALSO INSTALL SAFETY SHOWER AND EYE BATH.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

FACE SHIELD AND SAFETY GLASSES USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166(EU).

SKIN PROTECTION

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

BODY PROTECTION	IMPERVIOUS CLOTHING, FLAME RETARDANT ANTISTATIC PROTECTIVE CLOTHING. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.
RESPIRATORY PROTECTION	DUST RESPIRATOR. FOLLOW LOCAL AND NATIONAL REGULATIONS.
CONTROL OF ENVIRONMENTAL EXPOSURE	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	White to yellow crystalline powder
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	
FLASH POINT	
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION TEMPERATURE	NO DATA AVAILABLE
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	STABLE UNDER PROPER CONDITIONS.
POSSIBILITY OF HAZARDOUS REACTIONS	MAY EXPLOSIVELY DECOMPOSE ON HEATING, SHOCK, FRICTION, ETC.
CONDITIONS TO AVOID	HEAT, SPARK, OPEN FLAME, STATIC DISCHARGE, SHOCK, FRICTION
INCOMPATIBLE MATERIALS	OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS	CARBON DIOXIDE, CARBON MONOXIDE, NITROGEN OXIDES (NOX), HYDROGEN CHLORIDE

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	NO DATA AVAILABLE INHALATION: NO DATA AVAILABLE DERMAL: NO DATA AVAILABLE NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	NO DATA AVAILABLE
SERIOUS EYE DAMAGE/EYE IRRITATION	NO DATA AVAILABLE
RESPIRATORY OR SKIN SENSITISATION	NO DATA AVAILABLE
GERM CELL MUTAGENICITY	NO DATA AVAILABLE
CARCINOGENICITY IARC:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC.

NTP:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.
OSHA:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON OSHA S LIST OF REGULATED CARCINOGENS.
REPRODUCTIVE TOXICITY	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE
ADDITIONAL INFORMATION	RTECS: NOT AVAILABLE TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY	NO DATA AVAILABLE
PERSISTENCE AND DEGRADABILITY	NO DATA AVAILABLE
BIOACCUMULATIVE POTENTIAL	NO DATA AVAILABLE
MOBILITY IN SOIL	NO DATA AVAILABLE
RESULTS OF PBT AND VPVB ASSESSMENT	NO DATA AVAILABLE
OTHER ADVERSE EFFECTS	NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

CONTAMINATED PACKAGING DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: FLAMMABLE SOLID, ORGANIC, N.O.S (2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride)
UN NUMBER: 1325
CLASS: 4.1
PACKING GROUP: III

IMDG

PROPER SHIPPING NAME: FLAMMABLE SOLID, ORGANIC, N.O.S (2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride)
UN NUMBER: 1325
CLASS: 4.1
PACKING GROUP: III
EMS-NO: F-A, S-G

IATA

PROPER SHIPPING NAME: FLAMMABLE SOLID, ORGANIC, N.O.S (2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride)
UN NUMBER: 1325
CLASS: 4.1
PACKING GROUP: III

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride	69231-13-6	

NEW JERSEY RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
2,3-Bis(4-nitrophenyl)-5-phenyltetrazolium chloride	69231-13-6	

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

H228	FLAMMABLE SOLID.
H315	CAUSES SKIN IRRITATION.
H319	CAUSES SERIOUS EYE IRRITATION.

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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