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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	42148
NAME:	4,4-Diaminodiphenylmethane
SYNONYMS:	4,4-Methylenedianiline MDA
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)

ACUTE TOXICITY, ORAL (CATEGORY 3), H301

GERM CELL MUTAGENICITY (CATEGORY 2), H341

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 1), LIVER, EYE
- RETINA, H370

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (CATEGORY 2), LIVER, H373

SHORT-TERM (ACUTE) AQUATIC HAZARD (CATEGORY 1), H400

LONG-TERM (CHRONIC) AQUATIC HAZARD (CATEGORY 1), H410

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

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



SIGNAL WORD

DANGER

HAZARD STATEMENT(S)

H301 TOXIC IF SWALLOWED.
H341 SUSPECTED OF CAUSING GENETIC DEFECTS.
H370 CAUSES DAMAGE TO ORGANS (LIVER, EYE - RETINA).
H373 MAY CAUSE DAMAGE TO ORGANS (LIVER) THROUGH
PROLONGED OR REPEATED EXPOSURE.
H410 VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING
EFFECTS.

PRECAUTIONARY STATEMENT(S)

P201 OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
P202 DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE
BEEN READ AND UNDERSTOOD.
P260 DO NOT BREATHE DUST/ FUME/ GAS/ MIST/ VAPORS/ SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P270 DO NOT EAT, DRINK OR SMOKE WHEN USING THIS
PRODUCT.
P273 AVOID RELEASE TO THE ENVIRONMENT.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE
PROTECTION/ FACE PROTECTION.
P301 + P310 + P330 IF SWALLOWED: IMMEDIATELY CALL A POISON CENTER OR
DOCTOR/ PHYSICIAN. RINSE MOUTH.
P307 + P311 IF EXPOSED: CALL A POISON CENTER OR DOCTOR/
PHYSICIAN.
P391 COLLECT SPILLAGE.
P405 STORE LOCKED UP.
P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED
WASTE DISPOSAL PLANT.

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: C₁₃H₁₄N₂
 MW: 198.26
 CAS-NO. 101-77-9
 PURITY: ≥ 97% (GC)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
4,4-Diaminodiphenylmethane		
	ACUTE TOX. 3; MUTA. 2; STOT SE 1; STOT RE 2; AQUATIC ACUTE 1; AQUATIC CHRONIC 1; H301, H341, H370, H373, H400, H410 M-FACTOR - AQUATIC ACUTE: 1 - AQUATIC CHRONIC: 10	≤ 100%

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	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
IN CASE OF SKIN CONTACT	WASH OFF WITH SOAP AND PLENTY OF WATER. TAKE VICTIM IMMEDIATELY TO HOSPITAL. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	FLUSH EYES WITH WATER AS A PRECAUTION.
IF SWALLOWED	NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	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
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SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
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SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON OXIDES, NITROGEN OXIDES (NOX)
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ADVICE FOR FIREFIGHTERS	WEAR SELF-CONTAINED BREATHING APPARATUS FOR FIREFIGHTING IF NECESSARY.
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FURTHER INFORMATION	NO DATA AVAILABLE
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SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	WEAR RESPIRATORY PROTECTION. AVOID DUST FORMATION. AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. EVACUATE PERSONNEL TO SAFE AREAS. AVOID BREATHING DUST. FOR PERSONAL PROTECTION SEE SECTION 8.
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ENVIRONMENTAL PRECAUTIONS	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
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METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	PICK UP AND ARRANGE DISPOSAL WITHOUT CREATING DUST. SWEEP UP AND SHOVEL. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.
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REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.
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SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS.FURTHER PROCESSING OF SOLID MATERIALS MAY RESULT IN THE FORMATION OF COMBUSTIBLE DUSTS. THE POTENTIAL FOR COMBUSTIBLE DUST FORMATION SHOULD BE TAKEN INTO CONSIDERATION BEFORE ADDITIONAL PROCESSING OCCURS. PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED. FOR PRECAUTIONS SEE SECTION 2.2.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. 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

COMPONENT	CAS-NO.	VALUE	CONTROL PARAMETERS	BASIS
4,4-Diaminodiphenylmethane	101-77-9	TWA	0.1 PPM	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)
	REMARKS	LIVER DAMAGE CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS DANGER OF CUTANEOUS ABSORPTION		
		POTENTIAL OCCUPATIONAL CARCINOGEN SEE APPENDIX A		
		PEL	0.01 PPM 0.08 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS
		SKIN SEE SECTIONS 1535 AND 5200		
		STEL	0.1 PPM 0.8 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS
		SKIN SEE SECTIONS 1535 AND 5200		

		PEL	0.01 PPM	OSHA SPECIFICALLY REGULATED CHEMICALS/CARCINOGENS
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1910.1050

THIS SECTION APPLIES TO ALL OCCUPATIONAL EXPOSURES TO MDA, CHEMICAL ABSTRACTS SERVICE REGISTRY NO. 101-77-9, EXCEPT AS PROVIDED IN PARAGRAPHS (A)(2) THROUGH (A)(7) OF THIS SECTION. EXCEPT AS PROVIDED IN PARAGRAPHS (A)(8) AND (E)(5) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO THE PROCESSING, USE, AND HANDLING OF PRODUCTS CONTAINING MDA WHERE INITIAL MONITORING INDICATES THAT THE PRODUCT IS NOT CAPABLE OF RELEASING MDA IN EXCESS OF THE ACTION LEVEL UNDER THE EXPECTED CONDITIONS OF PROCESSING, USE, AND HANDLING WHICH WILL CAUSE THE GREATEST POSSIBLE RELEASE; AND WHERE NO "DERMAL EXPOSURE TO MDA" CAN OCCUR. EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO THE PROCESSING, USE, AND HANDLING OF PRODUCTS CONTAINING MDA WHERE OBJECTIVE DATA ARE REASONABLY RELIED UPON WHICH DEMONSTRATE THE PRODUCT IS NOT CAPABLE OF RELEASING MDA UNDER THE EXPECTED CONDITIONS OF PROCESSING, USE, AND HANDLING WHICH WILL CAUSE THE GREATEST POSSIBLE RELEASE; AND WHERE NO "DERMAL EXPOSURE TO MDA" CAN OCCUR. THIS SECTION DOES NOT APPLY TO THE STORAGE, TRANSPORTATION, DISTRIBUTION OR SALE OF MDA IN INTACT CONTAINERS SEALED IN SUCH A MANNER AS TO CONTAIN THE MDA DUSTS, VAPORS, OR LIQUIDS, EXCEPT FOR THE PROVISIONS OF 29 CFR 1910.1200 AND PARAGRAPH (D) OF THIS SECTION. THIS DOES NOT APPLY TO THE CONSTRUCTION INDUSTRY AS DEFINED IN 29 CFR 1910.12(B). (EXPOSURE TO MDA IN THE CONSTRUCTION INDUSTRY IS COVERED BY 29 CFR 1926.60). EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO MATERIALS IN ANY FORM WHICH CONTAIN LESS THAN 0.1% MDA BY WEIGHT OR VOLUME. EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO "FINISHED ARTICLES CONTAINING MDA." WHERE PRODUCTS CONTAINING MDA ARE EXEMPTED UNDER PARAGRAPHS (A)(2) THROUGH (A)(7) OF THIS SECTION, THE EMPLOYER SHALL MAINTAIN RECORDS OF THE INITIAL MONITORING RESULTS OR OBJECTIVE DATA SUPPORTING THAT EXEMPTION AND THE BASIS FOR THE EMPLOYER'S RELIANCE ON THE DATA, AS PROVIDED IN THE RECORDKEEPING PROVISION OF PARAGRAPH (N) OF THIS SECTION.

4,4' METHYLENEDIANILINE OR MDA MEANS THE CHEMICAL, 4,4'- DIAMINODIPHENYLMETHANE, CHEMICAL ABSTRACT SERVICE REGISTRY NUMBER 101-77-9, IN THE FORM OF A VAPOR, LIQUID, OR SOLID.

		THE DEFINITION ALSO INCLUDES THE SALTS OF MDA OSHA SPECIFICALLY REGULATED CARCINOGEN		
		STEL	0.1 PPM	OSHA SPECIFICALLY REGULATED CHEMICALS/CARCINOGENS

1910.1050

THIS SECTION APPLIES TO ALL OCCUPATIONAL EXPOSURES TO MDA, CHEMICAL ABSTRACTS SERVICE REGISTRY NO. 101-77-9, EXCEPT AS PROVIDED IN PARAGRAPHS (A)(2) THROUGH (A)(7) OF THIS SECTION. EXCEPT AS PROVIDED IN PARAGRAPHS (A)(8) AND (E)(5) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO THE PROCESSING, USE, AND HANDLING OF PRODUCTS CONTAINING MDA WHERE INITIAL MONITORING INDICATES THAT THE PRODUCT IS NOT CAPABLE OF RELEASING MDA IN EXCESS OF THE ACTION LEVEL UNDER THE EXPECTED CONDITIONS OF PROCESSING, USE, AND HANDLING WHICH WILL CAUSE THE GREATEST POSSIBLE RELEASE; AND WHERE NO "DERMAL EXPOSURE TO MDA" CAN OCCUR. EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO THE PROCESSING, USE, AND HANDLING OF PRODUCTS CONTAINING MDA WHERE OBJECTIVE DATA ARE REASONABLY RELIED UPON WHICH DEMONSTRATE THE PRODUCT IS NOT CAPABLE OF RELEASING MDA UNDER THE EXPECTED CONDITIONS OF PROCESSING, USE, AND HANDLING WHICH WILL CAUSE THE GREATEST POSSIBLE RELEASE; AND WHERE NO "DERMAL EXPOSURE TO MDA" CAN OCCUR. THIS SECTION DOES NOT APPLY TO THE STORAGE, TRANSPORTATION, DISTRIBUTION OR SALE OF MDA IN INTACT CONTAINERS SEALED IN SUCH A MANNER AS TO CONTAIN THE MDA DUSTS, VAPORS, OR LIQUIDS, EXCEPT FOR THE PROVISIONS OF 29 CFR 1910.1200 AND PARAGRAPH (D) OF THIS SECTION. THIS DOES NOT APPLY TO THE CONSTRUCTION INDUSTRY AS DEFINED IN 29 CFR 1910.12(B). (EXPOSURE TO MDA IN THE CONSTRUCTION INDUSTRY IS COVERED BY 29 CFR 1926.60). EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO MATERIALS IN ANY FORM WHICH CONTAIN LESS THAN 0.1% MDA BY WEIGHT OR VOLUME. EXCEPT AS PROVIDED IN PARAGRAPH (A)(8) OF THIS SECTION, THIS SECTION DOES NOT APPLY TO "FINISHED ARTICLES CONTAINING MDA." WHERE PRODUCTS CONTAINING MDA ARE EXEMPTED UNDER PARAGRAPHS (A)(2) THROUGH (A)(7) OF THIS SECTION, THE EMPLOYER SHALL MAINTAIN RECORDS OF THE INITIAL MONITORING RESULTS OR OBJECTIVE DATA SUPPORTING THAT EXEMPTION AND THE BASIS FOR THE EMPLOYER'S RELIANCE ON THE DATA, AS PROVIDED IN THE RECORDKEEPING PROVISION OF PARAGRAPH (N) OF THIS SECTION.

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	THE DEFINITION ALSO INCLUDES THE SALTS OF MDA OSHA SPECIFICALLY REGULATED CARCINOGEN
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EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS AVOID CONTACT WITH SKIN, EYES AND CLOTHING.
WASH HANDS BEFORE BREAKS AND IMMEDIATELY AFTER HANDLING THE PRODUCT.

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.

FULL CONTACT

MATERIAL: NITRILE RUBBER
MINIMUM LAYER THICKNESS: 0.4 MM
BREAK THROUGH TIME: 480 MIN
MATERIAL TESTED:CAMATRIL (KCL 730, SIZE M)

SPLASH CONTACT

MATERIAL: NITRILE RUBBER
MINIMUM LAYER THICKNESS: 0.11 MM
BREAK THROUGH TIME: 110 MIN
MATERIAL TESTED:DERMATRIL (KCL 740, SIZE M)

IF USED IN SOLUTION, OR MIXED WITH OTHER SUBSTANCES, AND UNDER CONDITIONS WHICH DIFFER FROM EN 374, CONTACT THE SUPPLIER OF THE CE APPROVED GLOVES. THIS RECOMMENDATION IS ADVISORY ONLY AND MUST BE EVALUATED BY AN INDUSTRIAL HYGIENIST AND SAFETY OFFICER FAMILIAR WITH THE SPECIFIC SITUATION OF ANTICIPATED USE BY OUR CUSTOMERS. IT SHOULD NOT BE CONSTRUED AS OFFERING AN APPROVAL FOR ANY SPECIFIC USE SCENARIO.

BODY PROTECTION

COMPLETE SUIT PROTECTING AGAINST CHEMICALS, THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

RESPIRATORY PROTECTION

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULLFACE PARTICLE RESPIRATOR TYPE N100 (US) OR TYPE P3 (EN 143) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

CONTROL OF ENVIRONMENTAL EXPOSURE

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	White, yellow or light brown powder or crystals
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	88 - 92 °C
INITIAL BOILING POINT AND BOILING RANGE	232 °C / 9 mm (Lit.)
FLASH POINT	221 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	< 0.01 HPA AT 25 °C - OECD TEST GUIDELINE 104
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	1.15 g/mL
WATER SOLUBILITY	1.01 G/L AT 25 °C - OECD TEST GUIDELINE 105
PARTITION COEFFICIENT: N- OCTANOL/WATER	LOG POW: 1.55 AT 25 °C - OECD TEST GUIDELINE 107
AUTO-IGNITION TEMPERATURE	515 °C AT 977 - 983 HPA
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

SOLUBILITY IN OTHER SOLVENTS	ACETONE SOLUBLE ETHER SOLUBLE METHANOL - SOLUBLE
SURFACE TENSION	69.5 AT 20.1 C
DISSOCIATION CONSTANT	4.96 AT 20 C

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	NO DATA AVAILABLE
POSSIBILITY OF HAZARDOUS REACTIONS	NO DATA AVAILABLE
CONDITIONS TO AVOID	NO DATA AVAILABLE
INCOMPATIBLE MATERIALS	OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS	HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS. - CARBON OXIDES, NITROGEN OXIDES (NOX) OTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	LD50 ORAL - RAT - MALE AND FEMALE - 444 MG/KG (OECD TEST GUIDELINE 401)
	INHALATION : NO DATA AVAILABLE
	DERMAL: NO DATA AVAILABLE
	NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	SKIN RABBIT RESULT: NO SKIN IRRITATION - 24 H
SERIOUS EYE DAMAGE/EYE IRRITATION	EYES RABBIT RESULT: NO EYE IRRITATION

RESPIRATORY OR SKIN SENSITISATION	NO DATA AVAILABLE
GERM CELL MUTAGENICITY	SUSPECTED OF CAUSING GENETIC DEFECTS. MUTAGENICITY (MAMMAL CELL TEST): CHROMOSOME ABERRATION. CHINESE HAMSTER OVARY CELLS RESULT: NEGATIVE SISTER CHROMATID EXCHANGE ASSAY CHINESE HAMSTER OVARY CELLS RESULT: POSITIVE MOUSE - MALE - BONE MARROW RESULT: POSITIVE
CARCINOGENICITY MAY CAUSE CANCER. IARC:	2B - GROUP 2B: POSSIBLY CARCINOGENIC TO HUMANS (4,4"-METHYLENEDIANILINE)
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	CAUSES DAMAGE TO ORGANS. - LIVER, EYE - RETINA
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE. - LIVER
ASPIRATION HAZARD	NO DATA AVAILABLE

**ADDITIONAL
INFORMATION**

REPEATED DOSE TOXICITY - RAT - MALE AND
FEMALE - DERMAL - NO OBSERVED ADVERSE EFFECT
LEVEL - 3 MG/KG

RTECS: BY5425000

ABSORPTION INTO THE BODY LEADS TO THE
FORMATION OF METHEMOGLOBIN WHICH IN
SUFFICIENT CONCENTRATION CAUSES CYANOSIS.
ONSET MAY BE DELAYED 2 TO 4 HOURS OR LONGER.,
FEVER, VOMITING, PROLONGED OR REPEATED
EXPOSURE CAN CAUSE., KIDNEY INJURY MAY
OCCUR.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL,
PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE
NOT BEEN THOROUGHLY INVESTIGATED.

STOMACH - IRREGULARITIES - BASED ON HUMAN
EVIDENCE

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH

STATIC TEST LC50 - ONCORHYNCHUS MYKISS
(RAINBOW TROUT) - 39 MG/L - 96 H
(OECD TEST GUIDELINE 203)

SEMI-STATIC TEST LC50 - ORYZIAS LATIPES - 20.6
MG/L - 96 H
(OECD TEST GUIDELINE 203)

**TOXICITY TO DAPHNIA AND
OTHER AQUATIC
INVERTEBRATES**

STATIC TEST EC50 - DAPHNIA MAGNA (WATER FLEA) -
0.35 MG/L - 48 H
(OECD TEST GUIDELINE 202)

TOXICITY TO ALGAE

STATIC TEST ERC50 - PSEUDOKIRCHNERIELLA
SUBCAPITATA (GREEN ALGAE) - 14.4 MG/L - 72 H
(OECD TEST GUIDELINE 201)

PERSISTENCE AND DEGRADABILITY

BIODEGRADABILITY

AEROBIC - EXPOSURE TIME 28 D
RESULT: 46 % - NOT READILY BIODEGRADABLE.
(OECD TEST GUIDELINE 301B)

**BIOACCUMULATIVE
POTENTIAL**

NO DATA AVAILABLE

MOBILITY IN SOIL

NO DATA AVAILABLE

**RESULTS OF PBT AND
VPVB ASSESSMENT**

PBT/VPVB ASSESSMENT NOT AVAILABLE AS
CHEMICAL SAFETY ASSESSMENT NOT
REQUIRED/NOT CONDUCTED

OTHER ADVERSE EFFECTS

AN ENVIRONMENTAL HAZARD CANNOT BE
EXCLUDED IN THE EVENT OF UNPROFESSIONAL
HANDLING OR DISPOSAL.
VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING
EFFECTS.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT

OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS
TO A LICENSED DISPOSAL COMPANY. CONTACT A
LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE
TO DISPOSE OF THIS MATERIAL. DISSOLVE OR MIX THE
MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN
IN A CHEMICAL INCINERATOR EQUIPPED WITH AN
AFTERBURNER AND SCRUBBER.

**CONTAMINATED
PACKAGING**

DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: 4,4"-DIAMINODIPHENYL METHANE
UN NUMBER: 2651
CLASS: 6.1
PACKING GROUP: III
REPORTABLE QUANTITY (RQ): 10 LBS
POISON INHALATION HAZARD: NO

IMDG

PROPER SHIPPING NAME: 4,4"-DIAMINODIPHENYL METHANE
UN NUMBER: 2651
CLASS: 6.1
PACKING GROUP: III
EMS-NO: F-A, S-A
MARINE POLLUTANT: YES

IATA

PROPER SHIPPING NAME: 4,4"-DIAMINODIPHENYL METHANE

UN NUMBER: 2651
CLASS: 6.1
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 THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

	CAS-NO.	REVISION DATE
4,4-Diaminodiphenylmethane	101-77-9	07/01/2007

SARA 311/312 HAZARDS ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD

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
4,4-Diaminodiphenylmethane	101-77-9	07/01/2007

SECTION 16. OTHER INFORMATION

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

H301 TOXIC IF SWALLOWED.
H341 SUSPECTED OF CAUSING GENETIC DEFECTS.
H370 CAUSES DAMAGE TO ORGANS (LIVER, EYE - RETINA).
H373 MAY CAUSE DAMAGE TO ORGANS (LIVER) THROUGH PROLONGED OR REPEATED EXPOSURE.
H410 VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

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:

*THE INFORMATION ABOVE IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES. IN NO EVENT SHALL **CII** BE LIABLE FOR ANY CLAIMS, LOSSES, OR DAMAGES OF ANY THIRD PARTY OR FOR LOST PROFITS OR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, HOWSOEVER ARISING, EVEN IF **CII** HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.*

VERSION: 3.2.

REVISION DATE: 07/01/2020