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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 41507

NAME: (1R,3S,4S)-N-Boc-2-azabicyclo[2.2.1]heptane-3-carboxylic

acid

SYNONYMS: (1*R*,3*S*,4*S*)-2-(tert-Butoxycarbonyl)-2-

azabicyclo[2.2.1]heptane-3-carboxylic acid

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)

SKIN IRRITATION (CATEGORY 2), H315 EYE IRRITATION (CATEGORY 2A), H319 REPRODUCTIVE TOXICITY (CATEGORY 1B), H360 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3), RESPIRATORY SYSTEM, H335 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)

| H315 | CAUSES SKIN IRRITATION |
|------|--|
| H319 | CAUSES SERIOUS EYE IRRITATION |
| H335 | MAY CAUSE RESPIRATORY IRRITATION |
| H360 | MAY DAMAGE FERTILITY OR THE UNBORN CHILD. |
| 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. | | |
| P261 | AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ | | |
| | SPRAY. | | |
| P264 | WASH SKIN THOROUGHLY AFTER HANDLING. | | |
| P271 | USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA. | | |
| P273 | AVOID RELEASE TO THE ENVIRONMENT. | | |
| P280 | WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE | | |
| | PROTECTION/ FACE PROTECTION. | | |
| P302 + P352 | IF ON SKIN: WASH WITH PLENTY OF SOAP AND WATER. | | |
| P304 + P340 | IF INHALED: REMOVE VICTIM TO FRESH AIR AND KEEP AT | | |
| | REST IN A POSITION COMFORTABLE FOR BREATHING. | | |
| P305 + P351 + P338 | IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL | | |
| | MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND | | |
| | EASY TO DO. CONTINUE RINSING. | | |
| P308 + P313 | IF EXPOSED OR CONCERNED: GET MEDICAL ADVICE/ | | |
| | ATTENTION. | | |
| P321 | SPECIFIC TREATMENT (SEE SUPPLEMENTAL FIRST AID | | |
| | INSTRUCTIONS ON THIS LABEL). | | |
| 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. | | |
| P391 | COLLECT SPILLAGE. | | |
| P403 + P233 | STORE IN A WELL-VENTILATED PLACE. KEEP CONTAINER | | |
| | TIGHTLY CLOSED | | |
| 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: $C_{12}H_{19}NO_4$

MW: 241.28

CAS-NO. 291775-59-2

PURITY: ≥ 96.5% (HPLC)

HAZARDOUS COMPONENTS

| COMPONENT | CLASSIFICATION | CONCENTRATION | | |
|---|-------------------------------|---------------|--|--|
| (1R,3S,4S)-N-Boc-2-azabicyclo[2.2.1]heptane-3-carboxylic acid | | | | |
| | SKIN IRRIT. 2; EYE IRRIT. 2A; | <= 100 % | | |
| | REPR. 1B; STOT SE 3; AQUATIC | | | |
| | ACUTE 1; AQUATIC CHRONIC | | | |
| | 1; H315, H319, H360, H335, | | | |
| | H400, H410 | | | |

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

WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.

CONTACT

IN CASE OF EYE RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT **CONTACT**

LEAST 15 MINUTES AND CONSULT A PHYSICIAN.

IF SWALLOWED NEVER GIVE ANYTHING BY MOUTH TO AN

UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER.

CONSULT A PHYSICIAN

MOST IMPORTANT SYMPTOMS AND

THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE

EFFECTS, BOTH ACUTE

AND DELAYED

NEEDED

SECTION 2.2) AND/OR IN SECTION 11

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY

EXTINGUISHING MEDIA CHEMICAL OR CARBON DIOXIDE.

SPECIAL HAZARDS

ARISING FROM THE

SUBSTANCE OR MIXTURE

CARBON OXIDES, NITROGEN OXIDES (NOX)

ADVICE FOR WEAR SELF-CONTAINED BREATHING APPARATUS FOR

FIREFIGHTERS FIREFIGHTING IF NECESSARY.

FURTHER INFORMATION NO DATA AVAILABLE

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL USE PERSONAL PROTECTIVE EQUIPMENT. AVOID PRECAUTIONS, DUST FORMATION. AVOID BREATHING VAPOURS, MIST

PROTECTIVE OR GAS. ENSURE ADEQUATE VENTILATION. EVACUATE PERSONNEL TO SAFE AREAS. AVOID **EQUIPMENT AND**

EMERGENCY BREATHING DUST. FOR PERSONAL PROTECTION SEE

PROCEDURES SECTION 8.

ENVIRONMENTAL PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE **PRECAUTIONS** TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.

DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

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.

REFERENCE TO OTHER SECTIONS

FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

AVOID CONTACT WITH SKIN AND EYES. AVOID

FORMATION OF DUST AND AEROSOLS.

PROVIDE APPROPRIATE EXHAUST VENTILATION AT

PLACES WHERE DUST IS FORMED.NORMAL

MEASURES FOR PREVENTIVE FIRE PROTECTION.

FOR PRECAUTIONS SEE SECTION 2.2.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND

WELL-VENTILATED PLACE.

KEEP IN A DRY PLACE.

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

APPROPRIATEHANDLE IN ACCORDANCE WITH GOOD INDUSTRIALENGINEERINGHYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE

CONTROLS BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

SAFETY GLASSES WITH SIDE-SHIELDS CONFORMING TO EN166 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, THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUPPLY AND A THE SPECIFIC WORLD A CE

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 to tan solid
ODOUR NO DATA AVAILABLE
ODOUR THRESHOLD NO DATA AVAILABLE
PH NO DATA AVAILABLE

MELTING 147 - 152 °C

POINT/FREEZING POINT INITIAL BOILING POINT AND BOILING RANGE

FLASH POINT

EVAPORATION RATE NO DATA AVAILABLE FLAMMABILITY (SOLID, NO DATA AVAILABLE

GAS)

UPPER/LOWER NO DATA AVAILABLE

FLAMMABILITY OR EXPLOSIVE LIMITS

VAPOUR PRESSURE NO DATA AVAILABLE

VAPOUR DENSITY NO DATA AVAILABLE

RELATIVE DENSITY

WATER SOLUBILITY NO DATA AVAILABLE PARTITION COEFFICIENT: LOG POW: 2.06

PARTITION COEFFICIENT: N- OCTANOL/WATER

AUTO-IGNITION NO DATA AVAILABLE

TEMPERATURE

DECOMPOSITION NO DATA AVAILABLE

TEMPERATURE

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 RECOMMENDED STORAGE

CONDITIONS.

POSSIBILITY OF HAZARDOUS REACTIONS

NO DATA AVAILABLE

CONDITIONS TO AVOID NO DATA AVAILABLE

INCOMPATIBLE

MATERIALS

NO DATA AVAILABLE

HAZARDOUS HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS. - CARBON OXIDES,

DECOMPOSITIONUNDER FIRE CONDITIONS**PRODUCTS**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 NO DATA AVAILABLE

INHALATION: NO DATA AVAILABLE

DERMAL: NO DATA AVAILABLE

NO DATA AVAILABLE

NO DATA AVAILABLE SKIN

CORROSION/IRRITATION

SERIOUS EYE NO DATA AVAILABLE

RESPIRATORY OR SKIN

DAMAGE/EYE IRRITATION

SENSITISATION

NO DATA AVAILABLE

GERM CELL NO DATA AVAILABLE MUTAGENICITY

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.

NO COMPONENT OF THIS PRODUCT PRESENT AT ACGIH:

> LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL

CARCINOGEN BY ACGIH.

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.

PRESUMED HUMAN REPRODUCTIVE TOXICANT REPRODUCTIVE TOXICITY

SPECIFIC TARGET ORGAN

TOXICITY - SINGLE

EXPOSURE

INHALATION - MAY CAUSE RESPIRATORY

IRRITATION.

SPECIFIC TARGET ORGAN

TOXICITY - REPEATED

EXPOSURE

NO DATA AVAILABLE

ASPIRATION HAZARD NO DATA AVAILABLE

ADDITIONAL RTECS: NOT AVAILABLE **INFORMATION**

> 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

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.

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.

CONTAMINATED PACKAGING

DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

NOT DANGEROUS GOODS

IMDG

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,

SOLID, N.O.S. ((1R,3S,4S)-N-Boc-2-azabicyclo[2.2.1]heptane-

3-carboxylic acid)

UN NUMBER: 3077
CLASS: 9
PACKING GROUP: III
EMS-NO: F-A, S-F
MARINE POLLUTANT: YES

IATA

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,

SOLID, N.O.S. ((1R,3S,4S)-N-Boc-2-azabicyclo[2.2.1]heptane-

3-carboxylic acid)

UN NUMBER: 3077 CLASS: 9 PACKING GROUP: III

FURTHER INFORMATION

EHS-MARK REQUIRED (IMDG CODE 2.10.3) FOR SINGLE PACKAGINGS AND COMBINATION PACKAGINGS CONTAINING INNER PACKAGINGS WITH DANGEROUS GOODS > 5L FOR LIQUIDS OR > 5KG FOR SOLIDS.

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.

SARA 311/312 HAZARDS ACUTE 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

(1*R*,3*S*,4*S*)-*N*-Boc-2- 291775-59-2

azabicyclo[2.2.1]heptane-3-

carboxylic acid

NEW JERSEY RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

(1*R*,3*S*,4*S*)-*N*-Boc-2- 291775-59-2

azabicyclo[2.2.1]heptane-3-

carboxylic acid

CALIFORNIA PROP. 65 COMPONENTS

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

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

H315 CAUSES SKIN IRRITATION.

H319 CAUSES SERIOUS EYE IRRITATION. H335 MAY CAUSE RESPIRATORY IRRITATION.

H360 MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

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 GOVERNMENENTAL 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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