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MATERIAL SAFETY DATA SHEET

Document #: MSDS-1001-1-1
Effective Date: 06/01/02
Supersedes: none

EMERGENCY # FOR US NATIONAL RESPONSE CENTER (800) 424-8802

Product Name: **Human Adiponectin ELISA kit**
Catalog #(s): K1001-1
Components:

1. 25x Wash Solution contains Tween20 (surfactant) in phosphate buffer
2. Sample Pre-Treatment Solution contains sodium dodecyl sulfate (SDS) in Tris buffer
3. Sample Diluent contains 5% bovine serum albumin in phosphate buffer with 0.05% sodium azide as a preservative
4. Plastic microtiter plate coated with anti-human adiponectin monoclonal antibody
5. Adiponectin Standard contains recombinant human adiponectin in phosphate buffer with 0.05% sodium azide as preservative
6. Secondary Antibody Solutions contains rabbit anti-human adiponectin antibody & 10% porcine serum in Tris buffer with 0.05% sodium azide as preservative
7. Detection Antibody Concentrate contains goat anti-rabbit IgG polyclonal antibody conjugated with horseradish peroxidase (SurModics' StabilZyme HRP as conjugate stabilizer)
8. Detection Antibody Diluent contains 1% bovine serum albumin in phosphate buffer
9. Substrate A contains 0.05% 3,3',5,5'-tetramethylbenzidine & 25% diethylformamide
10. Substrate B contains 0.015% hydrogen peroxide in citric acid buffer
11. Stop Solution contains 0.5mol/L sulfuric acid

MSDS for Individual Chemical Components

Tween 20

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: TWEEN(R) 20 250-450 MPA.S

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 9005-64-5

SYNONYMS

ARMOTAN PML-20, CAPMUL, DXEWMULSE POE-SML, EMSORB 6915, GLYCOSPERSE L-20, GLYCOSPERSE L-20X,

HODAG PSML-20, LIPOSORB L-20, POE 20 SORBITAN MONOLAUATE, POLYOXYETHYLENE (20) SORBITAN MONOLAUATE, PROTASORB L-20, PSML, SORBIMACROGOL LAURATE 300, SORBITAN, MONODODECANOTE, POLY(OXY-1,2-ETHANEDIYL) DERIVATIVES, TWEEN 20,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

DATA NOT AVAILABLE

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH

SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE-----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

WASH THOROUGHLY AFTER HANDLING.

AVOID INHALATION.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

KEEP TIGHTLY CLOSED.

STORE AT 2-8°C (35.6-46.4°F).

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

APPEARANCE AND ODOR: LIQUID.

PHYSICAL PROPERTIES

BOILING POINT: 100 C

FLASHPOINT: 300F 148.88C

VAPOR PRESSURE: < 1.0 MMHG

SOLUBILITY: WATER -Z1076

SPECIFIC GRAVITY: 0.985

VISCOSITY: 250 - 450 PAS

PH: 7

SWISS POISON CLASS: FREI

SECTION 10. ----- STABILITY AND REACTIVITY -----

STABILITY: STABLE.

INCOMPATIBILITIES: STRONG OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:

MAY CAUSE SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

MAY CAUSE EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER

RESPIRATORY TRACT.

MAY BE HARMFUL IF SWALLOWED.

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

RTECS #: TR7400000

POLYSORBATE 20

IRRITATION DATA:

SKN-HMN 15 MG/3D-I MLD

85DKA8 -,127,1977

TOXICITY DATA:

ORL-RAT LD50:36700 UL/KG

FOREAE 21,348,1956

IPR-RAT LD50:3850 MG/KG

ARZNAD 26,1581,1976

IVN-RAT LD50:770 MG/KG

ARZNAD 26,1581,1976

ORL-MUS LD50:>33 GM/KG

ARZNAD 26,1581,1976

IPR-MUS LD50:2640 MG/KG

ARZNAD 26,1581,1976

IVN-MUS LD50:1420 MG/KG

RPOBAR 2,316,1970

ORL-HAM LD50:18 ML/KG

FOREAE 21,348,1956

TARGET ORGAN DATA:

SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (OTHER DEVELOPMENTAL ABNORMALITIES)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

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.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

CAUTION: SUBSTANCE NOT YET FULLY TESTED.

REVIEWS, STANDARDS, AND REGULATIONS:

OEL=MAK

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION

FEREAC 54,7740,1989

NOES 1983: HZD X6874; NIS 22; TNF 5475; NOS 48; TNE 161625; TFE 125776

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

Sodium Dedecyl Sulfate (SDS)

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: SODIUM LAURYL SULFATE

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 151-21-3

MF: C12H25NAO4S

EC NO: 205-788-1

SYNONYMS:

AI3-00356, AKYPOSAL SDS, AQUAREX ME, AQUAREX METHYL , AVIROL 101, AVIROL 118 CONC, BEROL 452, CARSONOL SLS, CARSONOL SLS PASTE B, CARSONOL SLS SPECIAL, CONCO SULFATE WA, CONCO SULFATE WA-1200, CONCO SULFATE WA-1245, CONCO SULFATE WAG, CONCO SULFATE WAN, CONCO. SULFATE WAS, CONCO SULFATE WN, CP 75424, CYCLORYL 21, CYCLORYL 31, CYCLORYL 580, CYCLORYL 585N, DEHYDAG SULFATE GL EMULSION, DEHYDAG SULPHATE GL EMULSION, DETERGENT 66, DODECYL ALCOHOL, HYDROGEN SULFATE, SODIUM SALT, DODECYL SODIUM SULFATE, DODECYL SULFATE SODIUM, N-DODECYL SULFATE SODIUM, DODECYL SULFATE, SODIUM SALT, DREFT, DUPONAL, DUPONAL WAQE, DUPONOL, DUPONOL C, DUPONOL ME, DUPONOL METHYL, DUPONOL QX, DUPONOL WA, DUPONOL WA DRY, DUPONOL WAQ, DUPONOL WAQA, DUPONOL WAQE, DUPONOL WAQM, EMAL O, EMAL 10, EMERSAL 6400, EMPICOL LPZ, EMPICOL LS 30 EMPICOL LX 28, EMULSIFIER NO. 104, FINASOL OSR(SUB 2), GARDINOL, HEXAMOL SLS, INCRONOL SLS, IRIUM, JORDANOL SL-300, LANETTE WAX-S, LAURYL SIRAN SODNY (CZECH), LAURYL SODIUM SULFATE, LAURYL SULFATE, SODIUM SALT, MAPROFIX 563, MAPROFIX LK, MAPROFIX NEU, MAPROFIX WAC , MAPROFIX WAC-LA, MELANOL CL, MELANOL CL 30, MONODODECYL SODIUM SULFATE, MONOGEN Y 100 MONTOPOL LA PASTE, NCI-C50191, NEUTRAZYME, NIKKOL SLS, ODORIPON AL 95, ORVUS WA PASTE, P AND G EMULSIFIER 104, PERLANDROL L, PRODUCT NO. 75, PRODUCT NO. 161, QUOLAC EX-UB, REWOPOL NLS 30, RICHONOL A, RICHONOL AF, RICHONOL C, SDS, SINNOPON LS 95, SINNOPON LS 100, SINTAPON L, SIPEX OP, SIPEX SB, SIPEX SD, SIPEX SP, SIPEX UB, SIPON LS , SIPON LS 100, SIPON LSB, SIPON PD, SIPON WD, SLS, SODIUM DODECYL SULFATE, SODIUM N-DODECYL SULFATE, SODIUM DODECYL SULPHATE, SODIUM LAURYL SULFATE, SODIUM LAURYL SULPHATE, SODIUM MONODODECYL SULFATE , SODIUM MONOLAURYL SULFATE, SOLSOL NEEDLES, STANDAPOL 112 CONC, STANDAPOL WA-AC, STANDAPOL WAQ, STANDAPOL WAQ SPECIAL, STANDAPOL WAS 100, STEINAPOL NLS 90, STEPANOL ME, STEPANOL ME DRY, STEPANOL ME DRY AW, STEPANOL METHYL, STEPANOL METHYL DRY AW, STEPANOL T 28 , STEPANOL WA, STEPANOL WA-100, STEPANOL WAC, STEPANOL WA PASTE, STEPANOL WAQ, STERLING WA PASTE, STERLING WAQ-CH, STERLING WAQ-COSMETIC, SULFETAL L 95, SULFOPON WA 1, SULFOPON WA 2, SULFOPON WA 3, SULFOPON WA 1 SPECIAL, SULFOTEX WA, SULFOTEX WALA, SWASCOL 3L, SWASCOL 4L, SWASCOL 1P, SYNTAPON, SYNTAPON L, SYNTAPON L PASTA (CZECH), TARAPON K 12, TEXAPON DL CONC., TEXAPON K12, TEXAPON K-1296, TEXAPON L 100, TEXAPON V HC, TEXAPON V HC POWDER, TEXAPON ZHC, TEXAPON Z

HIGH CONC. NEEDLES, TREPENOL WA, TVM 474, ULTRA SULFATE SL-1, WAQE, WITCOLATE A, WITCOLATE A POWDER , WITCOLATE C ,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

HARMFUL

HARMFUL IF SWALLOWED.

IRRITATING TO EYES AND SKIN.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

HYGROSCOPIC

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

REMOVE

CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH

SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

EVACUATE AREA.

SECTION 7. ----- HANDLING AND STORAGE -----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION -----

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

DO NOT BREATHE DUST.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

KEEP TIGHTLY CLOSED.

STORE IN A COOL DRY PLACE.

WASH THOROUGHLY AFTER HANDLING.

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

PHYSICAL PROPERTIES:

MELTING POINT: 204 - 207 C

SOLUBILITY: WATER -Z26020 ISP. ALC, XYLEN

SPECIFIC GRAVITY: 0.37

PH: 7.2

SWISS POISON CLASS: 4

SECTION 10. ----- STABILITY AND REACTIVITY -----

STABILITY: STABLE.

INCOMPATIBILITIES: OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, SULFUR OXIDES

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:

THE SODIUM SALT OF DODECYL SULFATE HAS BEEN REPORTED TO CAUSE PULMONARY SENSITIZATION RESULTING IN HYPERACTIVE AIRWAY DYSFUNCTION AND PULMONARY ALLERGY ACCOMPANIED BY FATIGUE,

MALaise AND ACHING.

SIGNIFICANT SYMPTOMS OF EXPOSURE CAN PERSIST FOR MORE THAN TWO YEARS AND CAN BE ACTIVATED

BY A VARIETY OF NONSPECIFIC ENVIRONMENTAL STIMULI SUCH AS AUTOMOBILE EXHAUST, PERFUMES AND PASSIVE SMOKING.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT

BEEN THOROUGHLY INVESTIGATED.

CAUSES SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

CAUSES EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

HARMFUL IF SWALLOWED.

PROLONGED OR REPEATED EXPOSURE MAY CAUSE ALLERGIC REACTIONS IN CERTAIN SENSITIVE INDIVIDUALS.

LC

LD

RTECS #: WT1050000

SULFURIC ACID, MONODODECYL ESTER, SODIUM SALT

IRRITATION DATA

SKN-HMN 250 MG/24H MLD	TXAPA9 31,481,1975
SKN-HMN 25 MG/24H MLD	JSCCA5 23,371,1972
SKN-MUS 25 MG/24H MOD	JSCCA5 23,371,1972
SKN-DOG 25 MG/24H MLD	JSCCA5 23,371,1972
SKN-RBT 50 MG/24H SEV	BIOFX* 23-3/1971
SKN-RBT 25 MG/24H MOD	JSCCA5 23,371,1972
SKN-RBT 250 MG/24H MOD	TXAPA9 31,481,1975
SKN-RBT 10 MG/24H	DCTODJ 1,305,1978
SKN-RBT 50 MG/24H MLD	TXAPA9 21,369,1972
EYE-RBT 100 MG/24H MOD	28ZPAK -,305,1972
EYE-RBT 250 UG MLD	AROPAW 34,99,1945
EYE-RBT 2 MG	DCTODJ 1,305,1978
EYE-RBT 10 MG MOD	TXAPA9 55,501,1980
SKN-PIG 25 MG/24H MLD	JSCCA5 23,371,1972
SKN-GPG 25 MG/24H MLD	JSCCA5 23,371,1972

TOXICITY DATA

ORL-RAT LD50:1288 MG/KG	FCTXAV 5,763,1967
IHL-RAT LC50:>3900 MG/M3/1H	BIOFX* 23-3/1971
IPR-RAT LD50:210 MG/KG	PSTGAW 3,1,1945
IVN-RAT LD50:118 MG/KG	JPMSAE 52,803,1963
IPR-MUS LD50:250 MG/KG	JAPMA8 42,283,1953
IVN-MUS LD50:118 MG/KG	JPMSAE 52,803,1963

TARGET ORGAN DATA

BEHAVIORAL (SOMNOLENCE)

BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)

VASCULAR (REGIONAL OR GENERAL ARTERIOLAR OR VENOUS DILATION)

EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES

(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION

HARMFUL

R 22

HARMFUL IF SWALLOWED.

R 36/38

IRRITATING TO EYES AND SKIN.

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

S 36

WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION

FEREAC 54,7740,1989

NOHS 1974: HZD 81990; NIS 167; TNF 32028; NOS 113; TNE 388848

NOES 1983: HZD 81990; NIS 232; TNF 46312; NOS 170; TNE 886968; TFE 415360

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES

EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-0892-8800

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

Phosphate Buffer

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: PHOSPHATE BUFFER

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: NONE

HAZARDOUS INGREDIENTS:

CONTAINS SODIUM PHOSPHATE, DIBASIC CHEMICAL ABSTRACTS REGISTRY NUMBER 7558-79-4.

CONTAINS POTASSIUM PHOSPHATE, MONOBASIC, CHEMICAL ABSTRACTS REGISTRY NUMBER 7778-77-0.

RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS COMPONENT OF THIS PRODUCT.

SYNONYMS:

DIBASIC SODIUM PHOSPHAT, DISODIUM HYDROGEN PHOSPHATE, DISODIUM MONOHYDROGEN PHOSPHAT, DISODIUM ORTHOPHOSPHATE, DISODIUM PHOSPHATE, DISODIUM PHOSPHORIC ACID, EXSICCATED SODIUM PHOSPHATE, NATRIUMPHOSPHAT (GERMAN), SODA PHOSPHATE, SODIUM HYDROGEN PHOSPHATE, SODIUM PHOSPHATE, DIBASIC, PHOSPHORIC ACID, DISODIUM SALT,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS

CAUTION:

AVOID CONTACT AND INHALATION.

HYGROSCOPIC

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: NONCOMBUSTIBLE:

USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH

SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE-----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
AVOID INHALATION.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
WASH THOROUGHLY AFTER HANDLING.

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

APPEARANCE AND ODOR: SOLID.

SECTION 10. -----STABILITY AND REACTIVITY -----

STABILITY
STABLE.
INCOMPATIBILITIES
PROTECT FROM MOISTURE.
STRONG ACIDS
OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
PHOSPHOROUS OXIDES
SODIUM OXIDES
POTASSIUM OXIDES
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:
MAY CAUSE SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
MAY CAUSE EYE IRRITATION.
MAY BE HARMFUL IF INHALED.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.
MAY BE HARMFUL IF SWALLOWED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS
COMPONENT OF THIS PRODUCT.

RTECS #: WC4500000
SODIUM MONOHYDROGEN PHOSPHATE (2:1:1)
IRRITATION DATA:
SKN-RBT 500 MG/24H MLD 28ZPAK -,16,1972
EYE-RBT 500 MG/24H MLD 28ZPAK -,16,1972

TOXICITY DATA
ORL-RAT LD50:17 GM/KG 28ZPAK -,16,1972
TARGET ORGAN DATA
BEHAVIORAL (TETANY)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED
HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

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.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION

CAUTION: SUBSTANCE NOT YET FULLY TESTED.

RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS
COMPONENT OF THIS PRODUCT.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,1989

NOHS 1974: HZD 83514; NIS 85; TNF 6564; NOS 60; TNE 57176

NOES 1983: HZD 83514; NIS 166; TNF 21015; NOS 135; TNE 1230592; TFE
912048

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

Tris Buffer

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: TRIS BUFFERED SALINE WITH TWEEN 20, PH 8.0

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: NONE

HAZARDOUS INGREDIENTS:

CONTAINS SODIUM CHLORIDE, CHEMICAL ABSTRACTS REGISTRY NUMBER 7647-14-5.

CONTAINS TRIZMA BASE, CHEMICAL ABSTRACTS REGISTRY NUMBER 77-86-1.

CONTAINS TRIZMA HCL, CHEMICAL ABSTRACTS REGISTRY NUMBER 1185-53-1.

CONTAINS POTASSIUM CHLORIDE, CHEMICAL ABSTRACTS REGISTRY NUMBER 7447-40-7.

CONTAINS TWEEN 20 (POLYOXYETHYLENESORBITAN MONOLAURATE), CHEMICAL ABSTRACTS REGISTRY
NUMBER, 9005-64-5.

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

IRRITANT

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL
ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION.

IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15
MINUTES.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT
WITH

SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE -----

REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
WASH THOROUGHLY AFTER HANDLING.
DO NOT BREATHE DUST.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

APPEARANCE AND ODOR: SOLID.

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

STABILITY: STABLE.
INCOMPATIBILITIES: BASES OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:
CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES, HYDROGEN CHLORIDE GAS
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS:
CAUSES SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
CAUSES EYE IRRITATION.
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.
MAY BE HARMFUL IF INHALED.
MAY BE HARMFUL IF SWALLOWED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. - - - - - ECOLOGICAL INFORMATION - - - - -

DATA NOT YET AVAILABLE.

SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -

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.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - REGULATORY INFORMATION - - - - -

EUROPEAN INFORMATION:
CAUTION: SUBSTANCE NOT YET FULLY TESTED.
IRRITANT
R 36/37/38
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
S 26
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.
S 36
WEAR SUITABLE PROTECTIVE CLOTHING.

Bovine Serum Albumin (BSA)

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

NAME: PROTEIN STANDARD (BOVINE SERUM ALBUMIN)

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 9048-46-8
EC NO: 232-936-2
HAZARDOUS INGREDIENTS:
CONTAINS SODIUM AZIDE, CHEMICAL ABSTRACTS REGISTRY NUMBER 26628-22-8.

CONTAINS SODIUM CHLORIDE, CHEMICAL ABSTRACTS REGISTRY NUMBER 7647-14-5.

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

HARMFUL

HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED.

CONTACT WITH ACIDS LIBERATES VERY TOXIC GAS.

SODIUM AZIDE MAY REACT WITH LEAD AND COPPER PLUMBING TO FORM HIGHLY EXPLOSIVE METAL AZIDES.

KEEP CONTAINER TIGHTLY CLOSED.

WEAR SUITABLE PROTECTIVE CLOTHING AND GLOVES.

REFRIGERATE.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION.

IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH

SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS:

AZIDE REACTS WITH MANY HEAVY METALS SUCH AS LEAD, COPPER, MERCURY, SILVER, GOLD TO FORM EXPLOSIVE COMPOUNDS.

COPPER AND LEAD AZIDES ARE MORE SENSITIVE THAN NITROGLYCERINE.

AZIDE REACTS WITH METAL HALIDES TO GIVE A RANGE OF METAL AZIDE HALIDES, MANY OF WHICH ARE EXPLOSIVE.

INCOMPATIBLE WITH CHROMYL CHLORIDE, HYDRAZINE, BROMINE, CARBON DISULFIDE, DIMETHYL SULFATE,

DIBROMOMALONITRILE.

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SPILLED MATERIAL SHOULD BE CAREFULLY WIPED UP OR MOISTENED WITH WATER AND REMOVED.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE -----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION -----

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

WASH THOROUGHLY AFTER HANDLING.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

AVOID INHALATION.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

KEEP TIGHTLY CLOSED.

STORE AT 2-8°C (35.6-46.4°F).

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

APPEARANCE AND ODOR: LIQUID.

SECTION 10. ----- STABILITY AND REACTIVITY -----

STABILITY: STABLE.

INCOMPATIBILITIES:

DIMETHYL SULFATE IS INCOMPATIBLE WITH SODIUM AZIDE.

ACID CHLORIDES

HALOGENATED SOLVENTS

AVOID CONTACT WITH METALS.

AVOID CONTACT WITH ACID.

AZIDE REACTS WITH MANY HEAVY METALS SUCH AS LEAD, COPPER, MERCURY, SILVER, GOLD TO FORM EXPLOSIVE COMPOUNDS.

COPPER AND LEAD AZIDES ARE MORE SENSITIVE THAN NITROGLYCERINE. AZIDE REACTS WITH METAL HALIDES TO GIVE A RANGE OF METAL AZIDE HALIDES, MANY OF WHICH ARE EXPLOSIVE.

INCOMPATIBLE WITH CHROMYL CHLORIDE, HYDRAZINE, BROMINE, CARBON DISULFIDE, DIMETHYL SULFATE,
DIBROMOMALONITRILE.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: NATURE OF DECOMPOSITION PRODUCTS NOT KNOWN.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:

MAY CAUSE SKIN IRRITATION.

HARMFUL IF ABSORBED THROUGH SKIN.

MAY CAUSE EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

HARMFUL IF SWALLOWED.

MANY AZIDES CAUSE A FALL IN BLOOD PRESSURE AND SOME INHIBIT ENZYME ACTION.

LABORATORY EXPERIMENTS IN ANIMALS HAVE SHOWN SODIUM AZIDE TO PRODUCE A PROFOUND HYPOTENSIVE EFFECT, DEMYELINATION OF MYELINATED NERVE FIBERS IN THE CENTRAL NERVOUS SYSTEM,

TESTICULAR DAMAGE, BLINDNESS, ATTACKS OF RIGIDITY, HEPATIC AND CEREBRAL EFFECTS.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

HARMFUL

R 22

HARMFUL IF SWALLOWED.

3,3',5,5'-tetramethylbenzidine

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: 3,3',5,5'-TETRAMETHYLBENZIDINE SOLUTION

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 54827-17-7

EC NO: 259-364-6

SYNONYMS: 3,3',5,5'-TETRAMETHYLBENZIDINE , 3,5,3',5'-TETRAMETHYLBENZIDINE ,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

IRRITANT

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

DO NOT BREATHE DUST.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

LIGHT AND MOISTURE SENSITIVE.

REFRIGERATE.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE-----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

WASH THOROUGHLY AFTER HANDLING.

DO NOT BREATHE DUST.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

KEEP TIGHTLY CLOSED.

REFRIGERATE.

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

APPEARANCE AND ODOR: SOLID.

PHYSICAL PROPERTIES:

BOILING POINT: 168 - 169 C

MELTING POINT: 166 - 170 C

SOLUBILITY: WATER -Z1077

SECTION 10. -----STABILITY AND REACTIVITY -----

STABILITY: STABLE.

INCOMPATIBILITIES:

PROTECT FROM LIGHT.

PROTECT FROM MOISTURE.

AVOID CONTACT WITH METALS.

STRONG ACIDS

STRONG OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:

CAUSES SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

CAUSES EYE IRRITATION.

MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

MAY BE HARMFUL IF INHALED.

MAY BE HARMFUL IF SWALLOWED.

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

RTECS #: DV2300000

(1,1'-BIPHENYL)-4,4-DIAMINE, 3,3',5,5'-TETRAMETHYL-

TOXICITY DATA:

IPR-MUS LD50:135 MG/KG PMRSDJ 1,682,1981
ORL-QAL LD50:>316 MG/KG EESADV 6,149,1982
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

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.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

IRRITANT

R 36/37/38

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

S 22

DO NOT BREATHE DUST.

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL
ADVICE.

S 36

WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS:

OEL=MAK

EPA GENETOX PROGRAM 1988, POSITIVE: MAMMALIAN MICRONUCLEUS

EPA GENETOX PROGRAM 1988, NEGATIVE: HISTIDINE REVERSION-AMES TEST;
SPERM MORPHOLOGY-MOUSE

EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO UDS-HUMAN FIBROBLAST

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

Diethylformamide

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: N,N-DIETHYLFORMAMIDE

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 617-84-5

MF: C5H11NO

EC NO: 210-533-2

SYNONYMS: DIETHYLAMID KYSELINY MRAVENCI (CZECH) , DIETHYL FORMAMIDE , N,N-DIETHYLFORMAMIDE,
N-FORMYLDIETHYLAMINE ,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

IRRITANT

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

COMBUSTIBLE.

DO NOT BREATHE VAPOR.

AVOID CONTACT WITH SKIN AND EYES.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
PROTECTION.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION.
IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
COMBUSTIBLE LIQUID.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. ----- HANDLING AND STORAGE-----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

MECHANICAL EXHAUST REQUIRED.
SAFETY SHOWER AND EYE BATH.
WASH THOROUGHLY AFTER HANDLING.
DO NOT BREATHE VAPOR.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
KEEP AWAY FROM HEAT AND OPEN FLAME.
STORE IN A COOL DRY PLACE.

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

PHYSICAL PROPERTIES:
BOILING POINT: 61 - 63 C
FLASHPOINT: 141F 60.55C
SPECIFIC GRAVITY: 0.908
SWISS POISON CLASS: 3

SECTION 10. ----- STABILITY AND REACTIVITY -----

STABILITY: STABLE.
INCOMPATIBILITIES: STRONG OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:
CAUSES SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
CAUSES EYE IRRITATION.
MAY BE HARMFUL IF INHALED.
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
MAY BE HARMFUL IF SWALLOWED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS #: LQ1925000

FORMAMIDE, N,N-DIETHYL-

TOXICITY DATA:

IPR-RAT LD50:1740 MG/KG

BIJOAK 85,72,1962

UNR-RAT LD50:1740 MG/KG

85JCAE -,330,1986

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

IRRITANT

R 36/37/38

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

S 36/37/39

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

REVIEWS, STANDARDS, AND REGULATIONS:

OEL=MAK

NOES 1983: HZD X6943; NIS 1; TNF 49; NOS 5; TNE 6718

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

Sulfuric Acid

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

NAME: SULFURIC ACID 75%

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #:NONE

EC NO: 231-639-5

SYNONYMS: ACIDE SULFURIQUE (FRENCH), ACIDO SOLFORICO (ITALIAN), BATTERY ACID, BOV, DIHYDROGEN SULFATE, DIPPING ACID, ELECTROLYTE ACID, MATTLING ACID, OIL OF VITRIOL, SCHWEFELSAEURELOESUNGEN (GERMAN), STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID, SULFURIC ACID (ACGIH:OSHA), SULPHURIC ACID, VITRIOL BROWN OIL, ZWAVELZUUROPLOSSINGEN (DUTCH),

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

HIGHLY TOXIC (USA)

TOXIC (EU)

CAUSES SEVERE BURNS.

TOXIC BY INHALATION.

TARGET ORGAN(S):

TEETH

CARDIOVASCULAR SYSTEM

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE

IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

DO NOT BREATHE VAPOR.

NEVER ADD WATER TO THIS PRODUCT.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

DO NOT INDUCE VOMITING.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
REMOVE

CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

DO NOT USE WATER.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE
CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS: STRONG DEHYDRATING AGENT WHICH MAY CAUSE IGNITION OF
FINELY DIVIDED MATERIALS ON CONTACT.

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

WATER REACTIVE MATERIAL.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

COVER WITH DRY LIME OR SODA ASH, PICK UP, KEEP IN A CLOSED CONTAINER AND HOLD FOR WASTE
DISPOSAL.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

EVACUATE AREA.

SECTION 7. ----- HANDLING AND STORAGE -----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION -----

SAFETY SHOWER AND EYE BATH.

USE ONLY IN A CHEMICAL FUME HOOD.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

DISCARD CONTAMINATED SHOES.

WASH THOROUGHLY AFTER HANDLING.

DO NOT BREATHE VAPOR.

DO NOT GET IN EYES, ON SKIN, ON CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

FACESHIELD (8-INCH MINIMUM).

KEEP TIGHTLY CLOSED.

STORE IN A COOL DRY PLACE.

DO NOT ALLOW CONTACT WITH WATER.

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

APPEARANCE AND ODOR: LIQUID.

PHYSICAL PROPERTIES:

BOILING POINT: 290 C

MELTING POINT: 10.31 C

VAPOR PRESSURE: 1 MMHG @ 145.8 C

SOLUBILITY: WATER -Z1076

SPECIFIC GRAVITY: 1.8 G

VAPOR DENSITY: < 0.3 G/L

FREEZING POINT: 3 C

VISCOSITY: 21 PAS

PH: 1.2

SWISS POISON CLASS: 2

SECTION 10. ----- STABILITY AND REACTIVITY -----

STABILITY: STABLE.

INCOMPATIBILITIES:

PROTECT FROM MOISTURE.

DO NOT ALLOW WATER TO ENTER CONTAINER BECAUSE OF VIOLENT REACTION.

STRONG OXIDIZING AGENTS

DO NOT ALLOW CONTACT WITH WATER.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: SULFUR OXIDES

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

ACUTE EFFECTS:

CAUSES BURNS.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

TOXIC IF INHALED.

MAY BE HARMFUL IF SWALLOWED.

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN.

INHALATION MAY RESULT IN SPASM, INFLAMMATION AND EDEMA OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.

SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE

NOT

BEEN THOROUGHLY INVESTIGATED.

CHRONIC EFFECTS:

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS DETERMINED THAT OCCUPATIONAL EXPOSURE TO STRONG-INORGANIC-ACID MISTS CONTAINING SULFURIC ACID IS CARCINOGENIC TO HUMANS (GROUP 1).

TARGET ORGAN(S): TEETH CARDIOVASCULAR SYSTEM

RTECS #: WS5600000

SULFURIC ACID

IRRITATION DATA:

EYE-RBT 250 UG SEV AJOPAA 29,1363,1946
EYE-RBT 5 MG/30S RINSE SEV TXCYAC 23,281,1982

TOXICITY DATA:

UNR-MAN LDLO:135 MG/KG 85DCAI 2,73,1970
ORL-RAT LD50:2140 MG/KG AIHAAP 30,470,1969
IHL-RAT LC50:510 MG/M3/2H 85GMAT -,107,1982
IHL-MUS LC50:320 MG/M3/2H 85GMAT -,107,1982
IHL-GPG LC50:18 MG/M3 MELAAD 45,590,1954

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

EC INDEX NO: 016-020-00-8

TOXIC

R 35

CAUSES SEVERE BURNS.

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

S 30

NEVER ADD WATER TO THIS PRODUCT.

S 45

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

REVIEWS, STANDARDS, AND REGULATIONS:

OEL=MAK

ACGIH TLV-SUSPECTED HUMAN CARCINOGEN DTLVS* TLV/BEI,1999

ACGIH TLV-STEL 3 MG/M3 DTLVS* TLV/BEI,1999

ACGIH TLV-TWA 1 MG/M3 DTLVS* TLV/BEI,1999
IARC CANCER REVIEW:HUMAN SUFFICIENT EVIDENCE IMEMDT 54,41,1992
IARC CANCER REVIEW:GROUP 1 IMEMDT 54,41,1992
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,1989
MSHA STANDARD-AIR:TWA 1 MG/M3
DTLVS* 3,239,1971
OSHA PEL (GEN INDU):8H TWA 1 MG/M3
CFRGBR 29,1910.1000,1994
OSHA PEL (CONSTRUC):8H TWA 1 MG/M3
CFRGBR 29,1926.55,1994
OSHA PEL (SHIPYARD):8H TWA 1 MG/M3
CFRGBR 29,1915.1000,1993
OSHA PEL (FED CONT):8H TWA 1 MG/M3
CFRGBR 41,50-204.50,1994
OEL-ARAB REPUBLIC OF EGYPT: TWA 1 MG/M3, JAN1993
OEL-AUSTRALIA: TWA 1 MG/M3, JAN1993
OEL-AUSTRIA: MAK 1 MG/M3, JAN1999
OEL-BELGIUM: TWA 1 MG/M3, STEL 3 MG/M3, JAN1993
OEL-DENMARK: TWA 1 MG/M3, JAN1999
OEL-FINLAND: TWA 1 MG/M3, STEL 3 MG/M3, SKIN, JAN1999
OEL-FRANCE: VME 1 MG/M3, VLE 3 MG/M3, JAN1999
OEL-GERMANY: MAK 1 MG/M3, JAN1999
OEL-HUNGARY: STEL 1 MG/M3, JAN1993
OEL-JAPAN: OEL 1 MG/M3, JAN1999
OEL-THE NETHERLANDS: MAC-TGG 1 MG/M3, JAN1999
OEL-NORWAY: TWA 1 MG/M3, JAN1999
OEL-POLAND: MAC(TWA) 1 MG/M3, MAC(STEL) 3 MG/M3, JAN1999
OEL-RUSSIA: STEL 1 MG/M3, SKIN, JAN1993
OEL-SWEDEN: NGV 1 MG/M3, TKV 3 MG/M3, JAN1999
OEL-SWITZERLAND: MAK-W 1 MG/M3, KZG-W 2 MG/M3, JAN1999
OEL-THAILAND: TWA 1 MG/M3, JAN1993
OEL-TURKEY: TWA 1 MG/M3, JAN1993
OEL-UNITED KINGDOM: TWA 1 MG/M3, SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO SULFURIC ACID-AIR:10H TWA 1 MG/M3
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 70870; NIS 313; TNF 54746; NOS 143; TNE 499446
NOES 1983: HZD 70870; NIS 300; TNF 54516; NOS 182; TNE 775587; TFE
173653
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-0892-9247;8EHQ-0892-9248
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NIOSH ANALYTICAL METHOD, 1994: ACIDS, INORGANIC, 7903
NTP 9TH REPORT ON CARCINOGENS, 2000:KNOWN TO BE HUMAN CARCINOGEN
OSHA ANALYTICAL METHOD #ID-113

Sodium Azide

SECTION 1. ----- CHEMICAL IDENTIFICATION-----

NAME: SODIUM AZIDE SIGMAULTRA

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 26628-22-8

MF: N3NA

EC NO: 247-852-1

SYNONYMS:

AZIDE, SODIUM, AZOTURE DE SODIUM (FRENCH), AZYDEK SODU (POLISH), KAZOE, NATRIUMAZID (GERMAN), NATRIUMMAZIDE (DUTCH), NCI-C06462, NEMAZYD, NSC 3072, RCRA WASTE NUMBER P105, SMITE, SODIUM AZIDE (ACGIH), SODIUM, AZOTURE DE (FRENCH), SODIUM, AZOTURO DI (ITALIAN), U-3886,

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS:

HIGHLY TOXIC (USA)

VERY TOXIC (EU)

HEATING MAY CAUSE AN EXPLOSION.

VERY TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.

CONTACT WITH ACIDS LIBERATES VERY TOXIC GAS.

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

READILY ABSORBED THROUGH SKIN.

SODIUM AZIDE MAY REACT WITH LEAD AND COPPER PLUMBING TO FORM HIGHLY EXPLOSIVE METAL AZIDES.

TARGET ORGAN(S): NERVES, HEART,

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

DO NOT BREATHE DUST.

HEAT-SENSITIVE.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

REMOVE

CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER

FOR AT LEAST 15 MINUTES.

ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

EXTINGUISHING MEDIA: DRY CHEMICAL POWDER. DO NOT USE WATER.

SPECIAL FIREFIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS:

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.

AZIDE REACTS WITH MANY HEAVY METALS SUCH AS LEAD, COPPER, MERCURY, SILVER, GOLD TO FORM EXPLOSIVE COMPOUNDS.

COPPER AND LEAD AZIDES ARE MORE SENSITIVE THAN NITROGLYCERINE.

AZIDE REACTS WITH METAL HALIDES TO GIVE A RANGE OF METAL AZIDE HALIDES, MANY OF WHICH ARE EXPLOSIVE.

INCOMPATIBLE WITH CHROMYL CHLORIDE, HYDRAZINE, BROMINE, CARBON DISULFIDE, DIMETHYL SULFATE,

DIBROMOMALONITRILE.

AN EXPLOSION OCCURRED WHEN A MIXTURE OF SODIUM AZIDE, METHYLENE CHLORIDE, DIMETHYL SULFOXIDE, AND SULFURIC ACID WERE BEING CONCENTRATED ON A ROTARY EVAPORATOR.

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

EVACUATE AREA.

SECTION 7. ----- HANDLING AND STORAGE -----

REFER TO SECTION 8.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION -----

SAFETY SHOWER AND EYE BATH.

USE ONLY IN A CHEMICAL FUME HOOD.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

WASH THOROUGHLY AFTER HANDLING.

DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
EXPLODES WHEN HEATED.
AZIDE REACTS WITH MANY HEAVY METALS SUCH AS LEAD, COPPER, MERCURY, SILVER, GOLD TO FORM EXPLOSIVE COMPOUNDS.
COPPER AND LEAD AZIDES ARE MORE SENSITIVE THAN NITROGLYCERINE.
AZIDE REACTS WITH METAL HALIDES TO GIVE A RANGE OF METAL AZIDE HALIDES, MANY OF WHICH ARE EXPLOSIVE.
INCOMPATIBLE WITH CHROMYL CHLORIDE, HYDRAZINE, BROMINE, CARBON DISULFIDE, DIMETHYL SULFATE,
DIBROMOMALONITRILE.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

APPEARANCE AND ODOR: SOLID.
PHYSICAL PROPERTIES: MELTING POINT: 275 C
SOLUBILITY: WATER -Z26130
SPECIFIC GRAVITY: 1.846
PH: 9.0
SWISS POISON CLASS: 2

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

STABILITY: STABLE.
CONDITIONS TO AVOID: HEAT-SENSITIVE.
INCOMPATIBILITIES:
EXPLODES WHEN HEATED.
HALOGENATED SOLVENTS
AVOID CONTACT WITH METALS.
AVOID CONTACT WITH ACID.
ACID CHLORIDES
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:
NITROGEN OXIDES
REACTS WITH PROTIC SOLVENTS (WATER, ALCOHOLS, AMINES, ETC.) TO RELEASE TOXIC HYDRAZOIC ACID
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS:
MAY CAUSE SKIN IRRITATION.
MAY BE FATAL IF ABSORBED THROUGH SKIN.
MAY CAUSE EYE IRRITATION.
MAY BE FATAL IF INHALED.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
MAY BE FATAL IF SWALLOWED.
EXPOSURE CAN CAUSE:
NAUSEA, HEADACHE AND VOMITING
LABORATORY EXPERIMENTS IN ANIMALS HAVE SHOWN SODIUM AZIDE TO PRODUCE A PROFOUND HYPOTENSIVE EFFECT, DEMYELINATION OF MYELINATED NERVE FIBERS IN THE CENTRAL NERVOUS SYSTEM, TESTICULAR DAMAGE, BLINDNESS, ATTACKS OF RIGIDITY, HEPATIC AND CEREBRAL EFFECTS.
CHRONIC EFFECTS:
TARGET ORGAN(S): NERVES, HEART, BRAIN
LABORATORY EXPERIMENTS HAVE SHOWN MUTAGENIC EFFECTS.

RTECS #: VY8050000

SODIUM AZIDE

TOXICITY DATA

ORL-WMN LDLO:786 MG/KG	MTAEEB 4,219,1989
ORL-MAN LDLO:29 MG/KG	MTAEEB 4,219,1989
ORL-MAN LDLO:129 MG/KG	JATOD3 20,134,1996
ORL-WMN LDLO:14 MG/KG	JFSCAS 35,193,1990
ORL-MAN LDLO:143 MG/KG	JTCTDW 24,339,1986

ORL-RAT LD50:27 MG/KG	FMCHA2 -,C32,1991
IHL-RAT LC50:37 MG/M3	STGNBT -,173,1999
SKN-RAT LD50:50 MG/KG	STGNBT -,173,1999
SCU-RAT LD50:45100 UG/KG	MEPAAX 12,427,1961
ITR-RAT LD50:47500 UG/KG	MEPAAX 12,427,1961
ORL-MUS LD50:27 MG/KG	CLDND*
IHL-MUS LC50:32400 UG/M3	STGNBT -,173,1999
IPR-MUS LD50:28 MG/KG	JIHTAB 30,98,1948
SCU-MUS LD50:23060 UG/KG	MEPAAX 12,427,1961
IVN-MUS LD50:19 MG/KG	CLDND*
UNR-MUS LD50:27 MG/KG	BJCAAI 6,160,1952
SKN-RBT LD50:20 MG/KG	FMCHA2 -,C32,1991
ORL-BWD LD50:23700 UG/KG	AECTCV 12,355,1983

TARGET ORGAN DATA

BRAIN AND COVERINGS (INCREASED INTRACRANIAL PRESSURE)
 PERIPHERAL NERVE AND SENSATION (SPASTIC PARALYSIS WITH/WITHOUT SENSORY CH
 SENSE ORGANS AND SPECIAL SENSES (MYDRIASIS)
 SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)
 BEHAVIORAL (GENERAL ANESTHETIC)
 BEHAVIORAL (SOMNOLENCE)
 BEHAVIORAL (CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD)
 BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)
 BEHAVIORAL (COMA)
 BEHAVIORAL (HEADACHE)
 BEHAVIORAL (IRRITABILITY)
 CARDIAC (CARDIOMYOPATHY INCLUDING INFARCTION)
 CARDIAC (ARRYTHMIAS)
 CARDIAC (PULSE RATE INCREASED WITHOUT FALL IN BP)
 CARDIAC (PULSE RATE DECREASED WITH FALL IN BP)
 CARDIAC (CHANGE IN FORCE OF CONTRACTION)
 CARDIAC (OTHER CHANGES)
 VASCULAR (BP LOWERING NOT CHARACTERIZED IN AUTONOMIC SECTION)
 LUNGS, THORAX OR RESPIRATION (CHANGE IN TRACHEA OR BRONCHI)
 LUNGS, THORAX OR RESPIRATION (ACUTE PULMONARY EDEMA)
 LUNGS, THORAX OR RESPIRATION (DYSPPNAE)
 LUNGS, THORAX OR RESPIRATION (RESPIRATORY STIMULATION)
 LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)
 GASTROINTESTINAL (HYPERMOTILITY, DIARRHEA)
 KIDNEY, URETER, BLADDER (OTHER CHANGES)
 BLOOD (CHANGES IN SPLEEN)
 MUSCULO-SKELETAL (OTHER CHANGES)
 ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
 (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.
 OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT B-BRIDGE INTERNATIONAL FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

EUROPEAN INFORMATION:

EC INDEX NO: 011-004-00-7

VERY TOXIC

R 28

VERY TOXIC IF SWALLOWED.

R 32

CONTACT WITH ACIDS LIBERATES VERY TOXIC GAS.

R 50/53

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

S 28

AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF SOAP SUDS.

S 61

AVOID RELEASE TO THE ENVIRONMENT. REFER TO SPECIAL INSTRUCTIONS/ SAFETY DATA SHEETS.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN DTLVS* TLV/BEI,1999

ACGIH TLV-CL 0.29 MG/M3 (SODIUM AZIDE) DTLVS* TLV/BEI,1999

OEL-AUSTRALIA: TWA 0.1 PPM (0.3 MG/M3), JAN1993

OEL-AUSTRIA: MAK 0.07 PPM (0.2 MG/M3), JAN1999

OEL-BELGIUM: STEL 0.11 PPM (0.3 MG/M3), JAN1993

OEL-DENMARK: TWA 0.3 MG/M3, JAN1999

OEL-FINLAND: TWA 0.1 PPM (0.3 MG/M3), STEL 0.3 PPM (0.9 MG/M3), JAN1999

OEL-FRANCE: VLE 0.1 PPM (0.3 MG/M3), JAN1999

OEL-GERMANY: MAK 0.07 PPM (0.2 MG/M3), JAN1999

OEL-THE NETHERLANDS: MAC-TGG 0.1 PPM (0.3 MG/M3), JAN1999

OEL-NORWAY: TWA 0.3 MG/M3, JAN1999

OEL-SWITZERLAND: MAK-W 0.07 PPM (0.2 MG/M3), JAN1999

OEL-UNITED KINGDOM: STEL 0.3 MG(NAN3), SEP2000

OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV

NIOSH REL TO SODIUM AZIDE, AS HN3-AIR:CL 0.1 PPM (SK)

NIOSH* DHHS #92-100,1992

NOHS 1974: HZD 68820; NIS 13; TNF 877; NOS 10; TNE 5953

NOES 1983: HZD 68820; NIS 19; TNF 3640; NOS 27; TNE 54959; TFE 38370

EPA GENETOX PROGRAM 1988, POSITIVE: L5178Y CELLS IN VITRO-TK TEST

EPA GENETOX PROGRAM 1988, POSITIVE: D MELANOGASTER SEX-LINKED LETHAL

EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE GENE CONVERSION

EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE-FORWARD MUTATION; S

CEREVISIAE-REVERSION

EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO CYTOGENETICS-HUMAN

LYMPHOCYTE

EPA GENETOX PROGRAM 1988, NEGATIVE: SPERM MORPHOLOGY-MOUSE; IN VITRO

UDS-HUMAN FIBROBLAST

EPA GENETOX PROGRAM 1988, NEGATIVE: TRP REVERSION

EPA GENETOX PROGRAM 1988, INCONCLUSIVE: CARCINOGENICITY-MOUSE/RAT; TRP

REVERSION

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES

ON EPA IRIS DATABASE

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

NIOSH CURRENT INTELLIGENCE BULLETIN 13, 1976

NTP CARCINOGENESIS STUDIES (GAVAGE); NO EVIDENCE: RAT

NTPTR* NTP-TR-389,1991

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

All MSDS links listed are for general informational purposes only. We are not recommending the manufacturers above, nor were their products necessarily used in the manufacture of this product. The above chemicals are made by a number of manufacturers. Please note that the solutions used in the Human Adiponectin ELISA kit are generally very dilute.