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THE WORLD'S FOREMOST MANUFACTURER OF RESEARCH
BIOCHEMICALS AND DIAGNOSTIC REAGENTS

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PO BOX 296
WHITWATER WI 53190-0296

DATE 12/27/95
CUST#: 2-097-94804
PO#: QH4757

MATERIAL SAFETY DATA SHEET PAGE 1

THIS MSDS IS FOR A COMPONENT OF CATALOG #: LAA-21

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: LB000
NAME: L-LEUCINE

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 61-90-5
MF: C6H13NO2
EC NO: 200-522-0

SYNONYMS

ALPHA-AMINOISOCAPROIC ACID * 2-AMINO-4-METHYLPENTANOIC ACID * ALPHA-AMINO-GAMMA-METHYLVALERIC ACID * LEUCIN (GERMAN) * LEUCINE * L-LEUCINE * NORVALINE, 4-METHYL- * VALERIC ACID, 2-AMINO-4-METHYL-

SECTION 3. HAZARDS IDENTIFICATION

LABEL PRECAUTIONARY STATEMENTS

HARMFUL
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
POSSIBLE RISK OF IRREVERSIBLE EFFECTS.
POSSIBLE CARCINOGEN.
WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. FIRST-AID MEASURES

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
DISCARD CONTAMINATED CLOTHING AND SHOES.

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.

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

Table listing branch offices for SIGMA-ALDRICH in various countries including Germany, Spain, Italy, Belgium, Switzerland, Mexico, India, France, and South Korea.

CUST#: 2-097-94804
 PD#: QH4757

M A T E R I A L S A F E T Y D A T A S H E E T P A G E 2

THIS MSDS IS FOR A COMPONENT OF CATALOG #: LAA-21

CATALOG #: L9000
 NAME: L-LEUCINE

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

EVACUATE AREA.
 WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
 WEAR DISPOSABLE COVERALLS AND DISCARD THEM AFTER USE.
 SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE 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 -----

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
 SAFETY SHOWER AND EYE BATH.
 USE ONLY IN A CHEMICAL FUME HOOD.
 DO NOT BREATHE DUST.
 AVOID ALL CONTACT.
 WASH THOROUGHLY AFTER HANDLING.
 POSSIBLE CARCINOGEN.
 KEEP TIGHTLY CLOSED.
 STORE IN A COOL DRY PLACE.

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

APPEARANCE AND ODOR
 WHITE POWDER

PHYSICAL PROPERTIES
 MELTING POINT: >300 C

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

INCOMPATIBILITIES
 STRONG OXIDIZING AGENTS

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

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

ACUTE EFFECTS
 HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
 MAY CAUSE IRRITATION.

CHRONIC EFFECTS

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

SIGMA-ALDRICH VERTRIEBS GmbH Grünwälder Weg 30 52041 Dalsenroden Deutschland	SIGMA-ALDRICH QUIMICA, S.A. Apt. Corraos 161 28100 Alcobendas (Madrid) España	SIGMA-ALDRICH s.r.o. Krizkova 27 186 00 Praha 8 Ceská Republika	SIGMA CHEMIE K. Carlsplatz 8 B-2880 Bornem Belgie/Belgique	SIGMA CHEMIE P.O. Box 260 CH-9470 Buchs Switzerland	SIGMA-ALDRICH QUIMICA, S.A. de C.V. Avenida Picacho Ajusco No. 130-303 Fraccionamiento Jardines en la Montaña 14210 Mexico, D.F.	SIGMA-ALDRICH CORPORATION 2710 New Delhi Location B-4/158, Safdarjung Enclave New Delhi - 110 029 India
SIGMA CHIMIE L'ISLE D'Abbeau Chesnes B.P. 701 38297 St. Quentin Fallavier Cedex France	SIGMA-ALDRICH S.r.l Via Gallarate 154 20151 Milano Italia	SIGMA-ALDRICH PTY., LIMITED Unit 2, 10 Anella Ave. Castle Hill NSW 2154 Australia	SIGMA-ALDRICH CHEMICAL REPRESESENTACOES LTDA. Rua Sabara, 566 - Conj. 53 01239-010 São Paulo, SP Brasil	SIGMA CHEMICAL CO. LTD. Fancy Road, Poole Dorset BH17 7NH England	SIGMA-ALDRICH KH Teréz krt. 39 1067 Budapest Hungary	SIGMA-ALDRICH 206 Samhan Campus Building 17-3 Yoido-dong Yungdeungpo-ku Seoul South Korea



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MATERIAL SAFETY DATA SHEET PAGE 3

THIS MSDS IS FOR A COMPONENT OF CATALOG #: LAA-21

CATALOG #: LB000
NAME: L-LEUCINE

POSSIBLE CARCINOGEN.
THE LEVOROTARY (L) FORMS OF LEUCINE, ISOLEUCINE AND VALINE HAVE BEEN
FOUND TO HAVE TUMOR-PROMOTING ACTIVITY FOR BLADDER CARCINOMAS.
SCIENCE 231, 843, 21 FEBRUARY 1986.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS #: DH2850000
LEUCINE, L-

TOXICITY DATA
IPR-RAT LD50: 5379 MG/KG ABBIA4 58,253,55

TARGET ORGAN DATA
EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (EYE, EAR)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CRANIOFACIAL)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (BODY WALL)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (UROGENITAL 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 ---
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 SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. --- REGULATORY INFORMATION ---

EUROPEAN INFORMATION
HARMFUL
R 20/21/22
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R 40
POSSIBLE RISK OF IRREVERSIBLE EFFECTS.
S 36
WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

Table listing branch offices for SIGMA-ALDRICH in various countries including USA, Europe, and Asia.



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M A T E R I A L S A F E T Y D A T A S H E E T PAGE 4

THIS MSDS IS FOR A COMPONENT OF CATALOG #: LAA-21

CATALOG #: L3000
NAME: L-LEUCINE

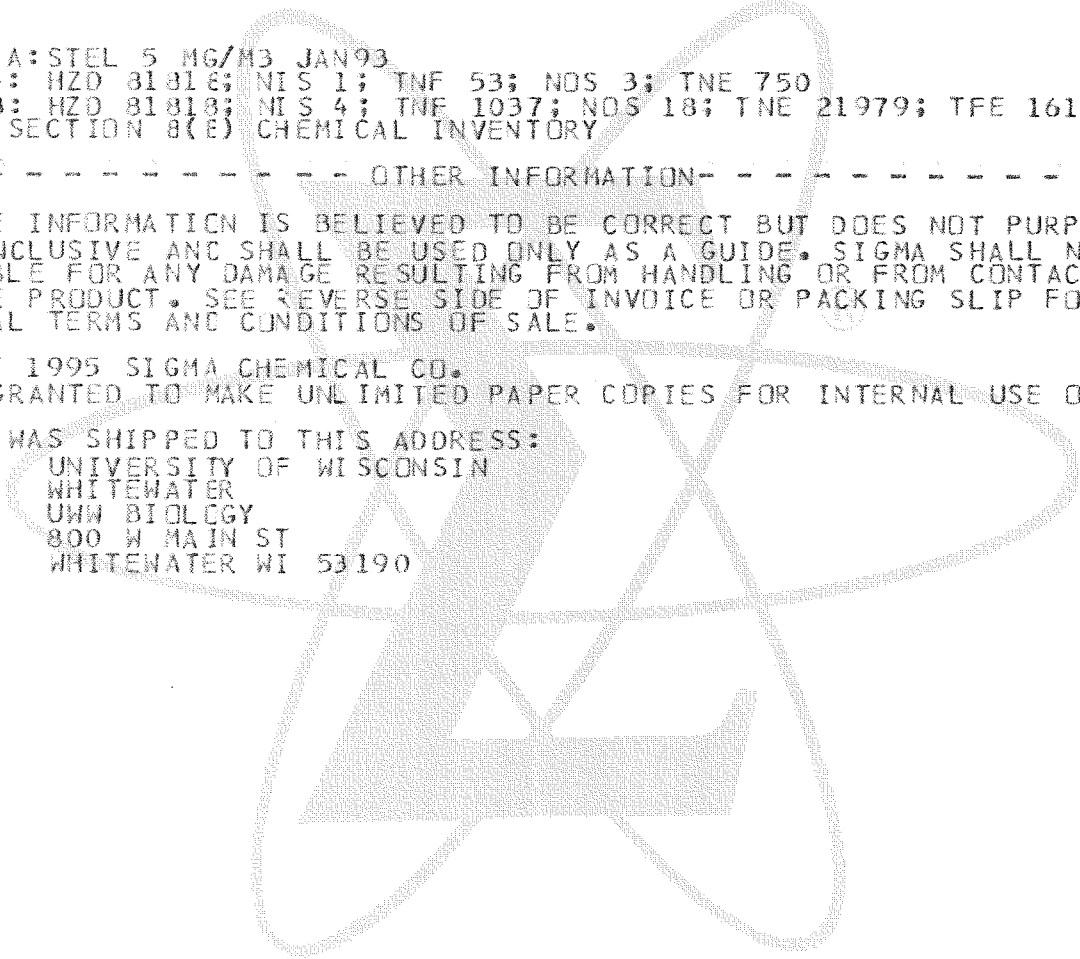
DEL=MAK
DEL-RUSSIA: STEL 5 MG/M3 JAN93
NDS 1974: HZD 81818; NIS 1; TNF 53; NOS 3; TNE 750
NDS 1983: HZD 81818; NIS 4; TNF 1037; NOS 18; TNE 21979; TFE 16153
EPA TSCA SECTION 8(E) CHEMICAL INVENTORY

SECTION 16. - - - - - OTHER INFORMATION - - - - -

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