## PRODUCT #: 124931 NAME: (R)-(-)-CARVONE, 98% (98% EE/GLC) MATERIAL SAFETY DATA SHEET, Valid 11/97 - 1/98 Printed Tuesday, March 11, 1903 9:07AM

Aldrich Chemical Co., Inc. Fluka Chemical Corp. Sigma Chemical Co. 

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 P.O. Box 14508 St. Louis, MO 63178 Phone: 314-771-5765 SECTION 1. - - - - - - CHEMICAL IDENTIFICATION- - - - - - - -124931 CATALOG #: NAME: (R)-(-)-CARVONE, 98% (98% EE/GLC) SECTION 2. - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -CAS #: 6485-40-1 MF: C10H14O EC NO: 229-352-5 SYNONYMS (-)-CARVONE \* L-CARVONE \* L(-)-CARVONE \* (R)-CARVONE \* 2-CYCLOHEXEN-1-ONE, 2-METHYL-5-(1-METHYLETHENYL)-, (R)- (9CI) \* P-MENTHA-6,8-DIEN-2-ONE, (-) - \* L-6,8(9)-P-MENTHADIEN-2-ONE \* L-1-METHYL-4-ISOPROPENYL-6-CYCLOHEXEN-2-ONE \* (R)-2-METHYL-5-(1-METHYLETHENYL)-2-CYCLOHEXEN-1-ONE \* SECTION 3. - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - -LABEL PRECAUTIONARY STATEMENTS HARMFUL HARMFUL IF SWALLOWED. COMBUSTIBLE. WEAR SUITABLE PROTECTIVE CLOTHING. SECTION 4. - - - - - - - - FIRST-AID MEASURES- - - - - - - - -IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER. 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. WASH CONTAMINATED CLOTHING BEFORE REUSE. SECTION 5. - - - - - - - FIRE FIGHTING MEASURES - - - - -EXTINGUISHING MEDIA CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM. WATER SPRAY. SPECIAL FIREFIGHTING PROCEDURES WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. COMBUSTIBLE LIQUID. UNUSUAL FIRE AND EXPLOSIONS HAZARDS EMITS TOXIC FUMES UNDER FIRE CONDITIONS. SECTION 6. - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - -EVACUATE AREA. 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. SECTION 7. - - - - - - - - HANDLING AND STORAGE- - - - - - - - -

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

REFER TO SECTION 8.

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CHEMICAL SAFETY GOGGLES.
   COMPATIBLE CHEMICAL-RESISTANT GLOVES.
   NIOSH/MSHA-APPROVED RESPIRATOR.
   SAFETY SHOWER AND EYE BATH.
   MECHANICAL EXHAUST REQUIRED.
   AVOID BREATHING VAPOR.
   AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
   AVOID PROLONGED OR REPEATED EXPOSURE.
   WASH THOROUGHLY AFTER HANDLING.
   KEEP TIGHTLY CLOSED.
   HARMFUL LIQUID.
   KEEP AWAY FROM HEAT AND OPEN FLAME.
   STORE IN A COOL DRY PLACE.
SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - -
 APPEARANCE AND ODOR
   COLORLESS TO PALE YELLOW LIQUID
 PHYSICAL PROPERTIES
   BOILING POINT:
                        227 C TO 230 C
                              192 F
   FLASHPOINT
                               88C
                      0.4MM 20 C
   VAPOR PRESSURE:
   SPECIFIC GRAVITY:
                        0.959
   VAPOR DENSITY: 5.2
SECTION 10. - - - - - - - - STABILITY AND REACTIVITY - - - -
 INCOMPATIBILITIES
   STRONG OXIDIZING AGENTS
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
   TOXIC FUMES OF:
   CARBON MONOXIDE, CARBON DIOXIDE
SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - -
 ACUTE EFFECTS
   HARMFUL IF SWALLOWED.
   MAY BE HARMFUL IF INHALED.
   MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
   MAY CAUSE IRRITATION.
   TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
   TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
 RTECS #: 0S8650000
   P-MENTHA-6, 8-DIEN-2-ONE, (R)-(-)-
 TOXICITY DATA
   ORL-RAT LD50:1640 MG/KG
                                                 FCTXAV 11,1057,1973
   IVN-MUS LD50:56 MG/KG
                                                 CSLNX* NX#02834
   ORL-GPG LD50:766 MG/KG
                                                 FCTXAV 11,1057,1973
   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 - - - - - - -
   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 ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.
SECTION 15. - - - - - - - REGULATORY INFORMATION - - - - -
 EUROPEAN INFORMATION
   HARMFUL
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R 22

HARMFUL IF SWALLOWED.

S 36

WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

NOES 1983: HZD X8585; NIS 8; TNF 459; NOS 39; TNE 19245; TFE 10383 EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

SECTION 16. - - - - - - - - - OTHER INFORMATION - - - - - - - - - - - - - THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH, FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE. COPYRIGHT 1997 SIGMA CHEMICAL CO., ALDRICH CHEMICAL CO., INC., FLUKA CHEMIE AG

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