Valid 11/2002 - 01/2003 Fluka Chemie AG Postfach 260 CH-9471 Buchs Switzerland Tel: 081 755 25 11 Fax. 081 756 54 49 Night: 071 228 3600 MATERIAL SAFETY DATA SHEET SECTION 1. - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - -CATALOG #: 12950 BENZOYLCHOLINE CHLORIDE\* NAME: SECTION 2. - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -CAS #: 2964-09-2 MF: C12H18CLNO2 EC NO: 221-000-9 SYNONYMS AMMONIUM, (2-HYDROXYETHYL)TRIMETHYL-, CHLORIDE, BENZOATE \* BENZOYLCHOLINE CHLORIDE \* 2-(BENZYLOXY)-N,N,N-TRIMETHYLETHANAMINIUM CHLORIDE \* ETHANAMINIUM, 2-(BENZYLOXY)-N,N,N-TRIMETHYL-, CHLORIDE (9CI) \* (2-HYDROXYETHYL)TRIMETHYLAMMONIUM CHLORIDE BENZOATE \* SECTION 3. - - - - - - - - HAZARDS IDENTIFICATION - - - - -LABEL PRECAUTIONARY STATEMENTS TRRTTANT 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- - - - - - - - -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 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- - - - -CHEMICAL SAFETY GOGGLES. COMPATIBLE CHEMICAL-RESISTANT GLOVES. NIOSH/MSHA-APPROVED RESPIRATOR. SAFETY SHOWER AND EYE BATH. MECHANICAL EXHAUST REQUIRED.

DO NOT BREATHE DUST. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. IRRITANT. KEEP TIGHTLY CLOSED. HYGROSCOPIC REFRIGERATE. SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - -APPEARANCE AND ODOR WHITE CRYSTALS PHYSICAL PROPERTIES MELTING POINT: 204 TO 208C SECTION 10. - - - - - - - - STABILITY AND REACTIVITY - - - - - - - -INCOMPATIBILITIES STRONG OXIDIZING AGENTS HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS TOXIC FUMES OF: CARBON MONOXIDE, CARBON DIOXIDE NITROGEN OXIDES HYDROGEN CHLORIDE GAS SECTION 11. - - - - - - - TOXICOLOGICAL INFORMATION - - - -ACUTE EFFECTS MAY BE HARMFUL BY INHALATION, INGESTION, OR SKIN ABSORPTION. CAUSES EYE AND SKIN IRRITATION. MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED. RTECS #: GA0830000 CHOLINE, CHLORIDE, BENZOATE TOXICITY DATA IPR-MUS LD50:49 MG/KG FATOAO 20(4),32,1957 TARGET ORGAN DATA BEHAVIORAL (SOMNOLENCE) BEHAVIORAL (CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD) LUNGS, THORAX OR RESPIRATION (RESPIRATORY DEPRESSION) 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 FLUKA CHEMICAL COMPANY 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 WEAR SUITABLE PROTECTIVE CLOTHING. 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 2001 SIGMA-ALDRICH CO. LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY