Sigma Chemical Co. P.O. Box 14508 St. Louis, MO 63178 USA Phone: 314-771-5765 MATERIAL SAFETY DATA SHEET SECTION 1. - - - - - - - CHEMICAL IDENTIFICATION- - - - -CATALOG #: L6146 LUGOL SOLUTION NAME: SECTION 2. - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -CAS #:NONE HAZARDOUS INGREDIENTS CONTAINS IODINE, CHEMICAL ABSTRACTS REGISTRY NUMBER 7553-56-2. CONTAINS POTASSIUM IODIDE, CHEMICAL ABSTRACTS SERVICE REGISTRY NUMBER, 7681-11-0. SYNONYMS IODINE-POTASSIUM IODIDE * LUGOL'S IODINE * LUGOL'S SOLUTION * MICROIODIDE * SECTION 3. - - - - - - - - HAZARDS IDENTIFICATION - - -LABEL PRECAUTIONARY STATEMENTS HIGHLY TOXIC (USA) TOXIC (EU) MAY CAUSE HARM TO THE UNBORN CHILD. TOXIC IN CONTACT WITH SKIN AND IF SWALLOWED. CAUSES BURNS. MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT. SEVERE LACHRYMATOR. TARGET ORGAN(S): THYROID BLOOD 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. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. 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 EMITS TOXIC FUMES UNDER FIRE CONDITIONS. SECTION 6. - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - -

Valid 11/2002 - 01/2003

RUBBER GLOVES. COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS. 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. WASH CONTAMINATED CLOTHING BEFORE REUSE. 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. KEEP TIGHTLY CLOSED. STORE IN A COOL DRY PLACE. SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - -APPEARANCE AND ODOR LIOUID. SECTION 10. - - - - - - - STABILITY AND REACTIVITY - - - - -STABILITY STABLE. INCOMPATIBILITIES STRONG OXIDIZING AGENTS HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS POTASSIUM OXIDES HYDROGEN IODIDE HAZARDOUS POLYMERIZATION WILL NOT OCCUR. SECTION 11. - - - - - - TOXICOLOGICAL INFORMATION - - - - - - -ACUTE EFFECTS CAUSES BURNS. TOXIC IF ABSORBED THROUGH SKIN. MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT. MAY BE HARMFUL IF INHALED. TOXIC IF SWALLOWED. INGESTION CAN CAUSE IMMEDIATE BURNING PAIN IN THE MOUTH, THROAT, ABDOMEN; SEVERE SWELLING OF THE LARYNX AND SKELETAL PARALYSIS AFFECTING THE ABILITY TO BREATHE, CIRCULATORY SHOCK AND CONVULSIONS. MAY CAUSE ALLERGIC REACTION. PROLONGED EXPOSURE TO IODIDES MAY PRODUCE IODISM IN SENSITIVE INDIVID-UALS. SYMPTOMS OF EXPOSURE INCLUDE: SKIN RASH, RUNNING NOSE, HEADACHE AND IRRITATION OF THE MUCOUS MEMBRANES. FOR SEVERE CASES THE SKIN MAY SHOW PIMPLES, BOILS, HIVES, BLISTERS AND BLACK AND BLUE SPOTS. IODIDES ARE READILY DIFFUSED ACROSS THE PLACENTA. NEONATAL DEATHS FROM RESPIRATORY DISTRESS SECONDARY TO GOITER HAVE BEEN REPORTED. IODIDES HAVE BEEN KNOWN TO CAUSE DRUG-INDUCED FEVERS, WHICH ARE USUALLY OF SHORT DURATION. CHRONIC EFFECTS TARGET ORGAN(S): THYROID BLOOD BONE MARROW MAY CAUSE CONGENITAL MALFORMATION IN THE FETUS. RTECS #: TT6840000 POTASSIUM TRIIODIDE TARGET ORGAN DATA EFFECTS ON FERTILITY (OTHER MEASURES OF FERTILITY) 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 CAUTION: SUBSTANCE NOT YET FULLY TESTED. TOXIC R 61 MAY CAUSE HARM TO THE UNBORN CHILD. R 24/25 TOXIC IN CONTACT WITH SKIN AND IF SWALLOWED. R 42/43 MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT. R 36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN. S 45 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE). S 36/37/39 WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION. S 26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. REVIEWS, STANDARDS, AND REGULATIONS OEL=MAK NOES 1983: HZD X3144; NIS 2; TNF 573; NOS 11; TNE 6430; TFE 3118 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 2001 SIGMA-ALDRICH CO. LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY