SAFETY DATA SHEET

SECTION 01: PRODUCT AND COMPANY INFORMATION

MANUFACTURER/SUPPLIER	LES INVESTISSEMENTS B.S.C. INC.
MANUFACTURER'S/SUPPLIERS ADDRESS	109 IBER RD., UNIT #3, OTTAWA, ON K2S 0X5 613-744-8896
PRODUCT NAME	SPEED - O
PRODUCT USE	DESCALER
EMERGENCY PHONE NUMBER	CANUTECH 613-996-6666

SECTION 02: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:

SKIN CONTACT	CAUSES SEVERE SKIN IRRITATION. CAUSES BURNS.
SKIN ABSORPTION	N.AV.
EYE CONTACT	CORROSIVE TO EYE TISSUE AND MAY CAUSE SEVERE DAMAGE AND BLINDNESS.
INHALATION	MISTS MAY CAUSE IRRITATION OF UPPER RESPIRATORY TRACT. COUGHING, SHORTNESS OF BREATH, HEADACHES AND CONFUSION MAY OCCUR. VAPOURS MAY CAUSE PULMONARY EDEMA. EXCESSIVE EXPOSURE MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. (NOSE AND THROAT). IN HUMANS, SYMPTOMS MAY INCLUDE: HEADACHE. IN ANIMALS, EFFECTS HAVE BEEN REPORTED ON THE FOLLOWING ORGANS: BLOOD (HEMOLYSIS). SECONDARY EFFECTS TO THE KIDNEY AND LIVER. HUMAN RED BLOOD CELLS HAVE BEEN SHOWN TO BE SIGNIFICANTLY LESS SENSITIVE TO HEMOLYSIS THAN THOSE OF RODENTS AND RABBITS.
INGESTION	CORROSIVE! MAY CAUSE SEVERE PAIN IN THE MOUTH, CHEST AND ABDOMEN, LEADING TO COUGH, VOMITING AND COLLAPSE. CAUSES VOMITING, NAUSEA, AND DIARRHEA.
EFFECTS/SYMPTOMS OF ACUTE EXPOSURE	REFER TO ROUTE OF ENTRY.
EFFECTS/SYMPTOMS OF CHRONIC EXPOSURE	IN LONG-TERM ANIMAL STUDIES WITH ETHYLENE GLYCOL BUTYL ETHER, SMALL BUT STATISTICALLY SIGNIFICANT INCREASES IN TUMORS WERE OBSERVED IN MICE BUT NOT RATS. THE EFFECTS ARE NOT BELIEVED TO BE RELEVANT TO HUMANS. IF THE MATERIAL IS HANDLED IN ACCORDANCE WITH PROPER INDUSTRIAL HANDLING, EXPOSURES SHOULD NOT POSE A CARCINOGENIC RISK TO MAN. HAS BEEN TOXIC TO THE FETUS IN LAB ANIMALS AT DOSES TOXIC TO THE MOTHER. IN ANIMAL STUDIES, EFFECTS ON REPRODUCTION HAVE BEEN SEEN ONLY AT DOSES THAT PRODUCED SIGNIFICANT TOXICITY TO THE PARENT ANIMALS.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE	N.AV.

SECTION 03: COMPOSITION / INFORMATION ON INGREDIENTS HAZARDS IDENTIFICATION

HAZARDOUS INGREDIENTS	C.A.S. #	%	TLV	LD50	LC50
PHOSPHORIC ACID	7664-38-2	9 - 20	SEE SECTION 11	SEE SECTION 11	SEE SECTION 11
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2	5 -10	SEE SECTION 11	SEE SECTION 11	SEE SECTION 11
ALCOHOLS, C9-11, ETHOXYLATED	68439-46-3	3 - 10	SEE SECTION 11	SEE SECTION 11	SEE SECTION 11
CITRIC ACID	77-92-9	1 - 5	SEE SECTION 11	SEE SECTION 11	SEE SECTION 11

SECTION 04: FIRST AID MEASURES

SKIN CONTACT	IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.

	REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. REMOVE CONTAMINATED SHOES AND DISCARD.
EYE CONTACT.....	IN CASE OF CONTACT, OR SUSPECTED CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IMMEDIATELY AFTER FLUSHING.
INHALATION.....	REMOVE PERSON TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GET IMMEDIATE MEDICAL ATTENTION.
INGESTION	DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GUARD AGAINST ASPIRATION INTO LUNGS BY HAVING THE INDIVIDUAL TURN ON TO THEIR LEFT SIDE.
NOTES TO PHYSICIAN.....	TREATMENT BASED ON SOUND JUDGMENT OF PHYSICIAN AND INDIVIDUAL REACTIONS OF PATIENT. IF COUGH OR SHORTNESS OF BREATH OCCURS, EVALUATE THE POSSIBILITY OF BRONCHITIS OR PNEUMONITIS. CHEST X-RAY AND ARTERIAL BLOOD GASES CAN BE USED TO DETERMINE THE PRESENCE OF PULMONARY EDEMA. IN SEVERE CASES, USE OF HUMIDIFIED OXYGEN AND ASSISTED VENTILATION INCLUDING POSITIVE END EXPIRATORY PRESSURE (PEEP) MAY BE NEEDED. PARENTERAL STEROIDS MAY BE USEFUL IN LIMITING THE EXTENT OF PULMONARY DAMAGE. IF NOT ALREADY PERFORMED BY FIRST AID PERSONNEL, IRRIGATE MOUTH WITH LARGE AMOUNTS OF WATER AND DILUTE THE ACID BY HAVING VICTIM DRINK 4 TO 8 OUNCES OF WATER OR MILK. DO NOT INDUCE VOMITING. USE OF GASTRIC LAVAGE IS CONTROVERSIAL. THE ADVANTAGE OF REMOVAL OF ACID MUST BE WEIGHTED AGAINST THE RISK OF PERFORATION OR BLEEDING. IF A LARGE AMOUNT OF ACID (>1 ML/KG BODY WEIGHT) HAS BEEN RECENTLY INGESTED, CAUTIOUS GASTRIC LAVAGE IS GENERALLY ADVISED IF THE PATIENT IS ALERT AND THERE IS LITTLE RISK OF CONVULSIONS. CONSULTATION WITH A GASTROENTEROLOGIST AND/OR SURGEON IS ADVISED. SERIOUS COMPLICATIONS SUCH AS PERFORATION OR STRICTURE OF THE ESOPHAGUS MAY OCCUR REQUIRING CARE BY SPECIALISTS. LARYNGEAL EDEMA MAY DEVELOP REQUIRING INTUBATION OR TRACHEOSTOMY. DUE TO STRUCTURAL ANALOGY AND CLINICAL DATA, THIS MATERIAL MAY HAVE A MECHANISM OF INTOXICATION SIMILAR TO ETHYLENE GLYCOL. ON THAT BASIS, TREATMENT SIMILAR TO ETHYLENE GLYCOL INTOXICATION MAY BE OF BENEFIT. IN CASES WHERE SEVERAL OUNCES HAVE BEEN INGESTED, CONSIDER THE USE OF ETHANOL AND HEMODIALYSIS IN THE TREATMENT. CONSULT STANDARD LITERATURE FOR DETAILS OF TREATMENT. IF ETHANOL IS USED, A THERAPEUTICALLY EFFECTIVE BLOOD CONCENTRATION IN THE RANGE OF 100 - 150 MG/DL MAY BE ACHIEVED BY A RAPID LOADING DOSE FOLLOWED BY A CONTINUOUS INTRAVENOUS INFUSION. CONSULT STANDARD LITERATURE FOR DETAILS OF TREATMENT. 4-METHYL PYRAZOLE (ANTIZOL) IS AN EFFECTIVE BLOCKER OF ALCOHOL DEHYDROGEN ASE AND SHOULD BE USED IN THE TREATMENT OF ETHYLENE GLYCOL, DI- OR TRIETHYLENE GLYCOL, ETHYLENE GLYCOL BUTYL ETHER, OR METHANOL INTOXICATION IF AVAILABLE. FOMEPIZOLE PROTOCOL (BRENT, J. ET AL., NEW ENGLAND JOURNAL OF MEDICINE, FEB 8, 2001, 344:6, P. 424-9): LOADING DOSE 15 MG/KG IV, FOLLOW BY BOLUS DOSE OF 10 MG/KG EVERY 12 HOURS; AFTER 48 HOURS, INCREASE BOLUS DOSE TO 15 MG/KG EVERY 12 HOURS. CONTINUE FOMEPIZOLE UNTIL SERUM METHANOL, EG, DEG, OR TEG ARE UNDETECTABLE. THE SIGNS AND SYMPTOMS OF POISONING INCLUDE ANION GAP METABOLIC ACIDOSIS, CNS DEPRESSION, RENAL TUBULAR INJURY, AND POSSIBLE LATE STAGE CRANIAL NERVE INVOLVEMENT. RESPIRATORY SYMPTOMS, INCLUDING PULMONARY EDEMA, MAY BE DELAYED. PERSONS RECEIVING SIGNIFICANT EXPOSURE SHOULD EB OBSERVED 24-48 HOURS FOR SIGNS OF RESPIRATORY DISTRESS. MAINTAIN ADEQUATE VENTILATION AND OXYGENATION OF THE PATIENT. IN SEVERE POISONING, RESPIRATORY SUPPORT

WITH MECHANICAL VENTILATION AND POSITIVE END EXPIRATORY PRESSURE MAY BE REQUIRED. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGEAL CONTROL. DANGER FROM LUNG ASPIRATION MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN, AFTER DECONTAMINATION. TREATMENT OF EXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION OF THE PATIENT.

SECTION 05: FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY	NON-FLAMMABLE.
MEANS OF EXTINCTION/EXTINGUISHING MEDIA:	USE DRY CHEMICALS, CO2, ALCOHOL FOAM OR WATER SPRAY.
FLASH POINT	N.AP.
UPPER FLAMMABLE LIMIT (% BY VOLUME)	N.AV.
LOWER FLAMMABLE LIMIT (% BY VOLUME)	N.AV.
AUTO-IGNITION TEMPERATURE	N.AV.
SPECIAL FIRE FIGHTING PROCEDURES	FIRE FIGHTERS SHOULD WEAR FULL PROTECTIVE CLOTHING, INCLUDING SELF-CONTAINED BREATHING EQUIPMENT. ISOLATE AND RESTRICT AREA ACCESS. FIGHT FIRE FROM A SAFE DISTANCE AND FROM A PROTECTED LOCATION. USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS AND STRUCTURES. DO NOT USE A SOLID STREAM OF WATER. VIOLENT STEAM GENERATION OR ERUPTION MAY OCCUR UPON APPLICATION OF DIRECT WATER STREAM TO HOT LIQUIDS.
UNUSUAL FIRE AND EXPLOSION HAZARDS	N.AV.
EXPLOSION DATA	N.AV.
SENSITIVITY TO MECHANICAL IMPACT	N.AV.
SENSITIVITY TO STATIC DISCHARGE	N.AV.
HAZARDOUS COMBUSTION PRODUCTS	OXIDES OF PHOSPHORUS. DURING A FIRE, SMOKE MAY CONTAIN THE ORIGINAL MATERIAL IN ADDITION TO COMBUSTION PRODUCTS OF VARYING COMPOSITION WHICH MAY BE TOXIC AND/OR IRRITATING. COMBUSTION PRODUCTS MAY INCLUDE AND ARE NOT LIMITED TO: CARBON MONOXIDE, CARBON DIOXIDE.

SECTION 06: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES	WEAR APPROPRIATE PROTECTIVE EQUIPMENT. PREVENT ENTRY INTO SEWERS OR STREAMS, DIKE IF NEEDED. ISOLATE HAZARD AREA AND RESTRICT ACCESS. TRY TO WORK UPWIND OF SPILL. NEUTRALIZE WITH LIME SLURRY, LIMESTONE, OR SODA ASH. NEUTRALIZE CONTAMINATION AREA AND FLUSH WITH LARGE QUANTITIES OF WATER. ABSORB WITH AN INERT DRY MATERIAL AND PLACE IN AN APPROPRIATE WASTE DISPOSAL CONTAINER. DO NOT TOUCH OR WALK THROUGH SPILLED MATERIAL.

SECTION 07: HANDLING AND STORAGE

HANDLING PROCEDURES AND EQUIPMENT	AVOID CONTACT WITH EYES, SKIN AND CLOTHING. DO NOT INGEST. THIS PRODUCT REACTS VIOLENTLY WITH BASES LIBERATING HEAT AND CAUSING SPATTERING. KEEP AWAY FROM HEAT, SPARKS AND FLAME. CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN VAPOURS. DO NOT CUT, DRILL, GRIND, WELD OR PERFORM SIMILAR OPERATIONS ON OR NEAR CONTAINERS.
STORAGE REQUIREMENTS	STORE IN A COOL, DRY, WELL VENTILATED AREA. STORE IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICES.

SECTION 08: EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROL	LOCAL EXHAUST VENTILATION AS NECESSARY TO MAINTAIN EXPOSURES TO WITHIN APPLICABLE LIMITS.
PERSONAL PROTECTIVE EQUIPMENT:	
SKIN PROTECTION	IMPERVIOUS GLOVES.
CLOTHING	SKIN CONTACT SHOULD BE PREVENTED THROUGH THE USE OF SUITABLE PROTECTIVE CLOTHING, GLOVES AND FOOTWEAR,

	SELECTED FOR CONDITIONS OF USE AND EXPOSURE POTENTIAL. CONSIDERATION MUST BE GIVEN BOTH TO DURABILITY AS WELL AS PERMEATION RESISTANCE. APRON, COVERALLS AND/OR OTHER RESISTANT PROTECTIVE CLOTHING.
EYE/FACE PROTECTION	CHEMICAL GOGGLES; ALSO WEAR A FACE SHIELD IF SPLASHING HAZARD EXISTS.
RESPIRATORY PROTECTION	IF EXPOSURE EXCEEDS OCCUPATIONAL EXPOSURE LIMITS, USE AN APPROPRIATE NIOSH APPROVED RESPIRATOR. IN CASE OF SPILL OR LEAK RESULTING IN UNKNOWN CONCENTRATION, USE A NIOSH APPROVED SUPPLIED AIR RESPIRATOR.
WORK/HYGIENE PRACTICES	ENSURE THAT EYEWASH STATIONS AND SAFETY SHOWERS ARE PROXIMAL TO THE WORK-STATION LOCATION.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	LIQUID
APPEARANCE & ODOUR	CLEAR – BUTYL ODOUR
ODOUR THRESHOLD	N.AV.
SPECIFIC GRAVITY	N.AV.
VAPOUR PRESSURE (MMHG)	N.AV.
VAPOUR DENSITY (AIR=1)	N.AV.
EVAPORATION RATE	N.AV.
BOILING POINT	96°C
FREEZING/MELTING POINT	-8°C
PH	14
SOLUBILITY IN WATER (% W/W)	SOLUBLE.
COEFFICIENT OF WATER/OIL DISTRIBUTION	N.AV.

SECTION 10: STABILITY AND REACTIVITY

STABILITY	STABLE UNDER NORMAL OPERATING CONDITIONS.
CONDITIONS TO AVOID	CONTACT WITH INCOMPATIBLE MATERIALS.
INCOMPATIBILITY (MATERIALS TO AVOID)	FLUORINE. STRONG OXIDIZING AGENTS. STRONG REDUCING AGENTS. STRONG BASES. METALS. SULFUR TRIOXIDE. PHOSPHORUS PENTOXIDE. STRONG OXIDIZERS. STRONG BASES. ALKALI METALS. ORGANIC ACIDS. METALLIC NITRATES. OXIDES OF SULFUR. CONTACT WITH STRONG ACIDS, STRONG BASES, STRONG OXIDIZERS. REACTIVE METALS (E.G. SODIUM, CALCIUM, ZINC ETC.). MATERIALS REACTIVE WITH HYDROXYL COMPOUNDS. COPPER ALLOYS.
HAZARDOUS DECOMPOSITION PRODUCT	OXIDES OF PHOSPHORUS. ALDEHYDES, KETONES, ORGANIC ACIDS. CARBON MONOXIDE. CARBON DIOXIDE (CO2). ALDEHYDES. FLAMMABLE HYDROCARBON FRAGMENTS.
HAZARDOUS POLYMERIZATION	WILL NOT OCCUR.

SECTION 11: TOXICOLOGICAL INFORMATION

EXPOSURE LIMITS	ETHYLENE GLYCOL MONOBUTYL ETHER: 20 PPM TWA ACGIH.
LD50	ETHYLENE GLYCOL MONOBUTYL ETHER: PERORAL: RAT; LD50 = 470 - 3,000 MG/KG. PERCUTANEOUS: RAT; 2,270 MG/KG; RABBIT; LD50 = 99 - 610 MG/KG. GUINEA PIG; LD50 = >2,000 MG/KG. ALCOHOLS, C9-11, ETHOXYLATED: > 2,000 MG/KG (ORAL, RAT). 300 MG/KG (DERMAL, RAT). CITRIC ACID: 11,700 MG/KG (ORAL, RAT).
LC50	ETHYLENE GLYCOL MONOBUTYL ETHER: VAPOR STUDY RAT; 7 HOUR; LC50 = 700 PPM.
IRRITANCY OF MATERIAL	SEE SECTION 2.
SENSITIZATION TO PRODUCT	N.AV.
CARCINOGENICITY	N.AV.
REPRODUCTIVE TOXICITY	ETHYLENE GLYCOL MONOBUTYL ETHER: IN ANIMAL STUDIES, EFFECTS ON REPRODUCTION HAVE BEEN SEEN ONLY AT DOSES THAT PRODUCED SIGNIFICANT TOXICITY TO THE PARENT ANIMALS.
TERATOGENICITY	N.AV.
MUTAGENICITY	N.AV.

TOXICOLOGICAL SYNERGISTIC PRODUCTS.....	N.AV.
CHRONIC TOXICITY	SEE SECTION 2.
DEVELOPMENTAL TOXICITY	ETHYLENE GLYCOL MONOBUTYL ETHER: HAS BEEN TOXIC TO THE FETUS IN LAB ANIMALS AT DOSES TOXIC TO THE MOTHER. DID NOT CAUSE BIRTH DEFECTS IN LABORATORY ANIMALS.
SIGNIFICANT DATA WITH POSSIBLE ..... RELEVANCE TO HUMANS	ETHYLENE GLYCOL MONOBUTYL ETHER: REPEATED DOSE TOXICITY: IN ANIMALS, EFFECTS HAVE BEEN REPORTED ON RELEVANCE TO HUMANS THE FOLLOWING ORGANS: BLOOD (HEMOLYSIS). SECONDARY EFFECTS TO THE KIDNEY AND LIVER. HUMAN RED BLOOD CELLS HAVE BEEN SHOWN TO BE SIGNIFICANTLY LESS SENSITIVE TO HEMOLYSIS THAN THOSE OF RODENTS AND RABBITS.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION	N.AV.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL.....	IN ACCORDANCE WITH MUNICIPAL, PROVINCIAL AND FEDERAL REGULATIONS.

SECTION 14: TRANSPORT INFORMATION

PROPER SHIPPING NAME.....	CORROSIVE LIQUIDS, N.O.S. (PHOSPHORIC ACID)
TDG CLASSIFICATION	8
UN NUMBER	1760
PACKGING GROUP	III

SECTION 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION	B3. D1A. D2B. E.
CPR COMPLIANCE.....	THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS (CPR) AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

SECTION 16: OTHER INFORMATION

PREPARATION INFORMATION	PREPARED BY: REGULATORY AFFAIRS, TELEPHONE - (613)-744-8896 PREPARATION DATE: JULY 1, 2016

N.AV. = NOT AVAILABLE
N.AP. = NOT APPLICABLE