MATERIAL SAFETY DATA SHEET

Product: Potassium Perchlorate
Revision Date: August 31, 2004
Review Date: August 31, 2004

I: COMPANY INFORMATION:

Distributor's Name/Agent:	SERVICE CHEMICAL, INC.
Address:	2651 Penn Avenue Hatfield, PA 19440
Emergency Telephone No:	1(800)255-3924 (CHEMTEL)
Other Information Call:	215-362-0411

II: PRODUCT CLASSIFICATION:

PRODUCT NAME:	Potassium Perchlorate
CHEMICAL NAME:	Potassium Perchlorate
CHEMICAL FAMILY:	Inorganic Salt
SYNONYMS:	Potassium Hyperchlorate; Peroidin; Potassium Hyperchloride; Perchloric Acid; Potassium Salt
CAS NUMBER:	7778-74-7
FORMULA:	$KCLO_4$

III: PHYSICAL PROPERTIES:

PHYSICAL FORM:	Solid
APPEARANCE:	Powder or crystals
COLOR:	Colorless to white
ODOR:	Odorless
MELTING POINT:	1130° F (610° C) (decomposes at 752° F)
SOLUBILITY IN WATER:	0.75% @ 0° C
SPECIFIC GRAVITY:	2.52 @ 10° C
MOLECULAR WEIGHT:	138.55
SOLVENT SOLUBILITY:	Very slightly soluble in alcohol; insoluble in ether.

IV: INGREDIENTS:

INGREDIENT NAME	CAS NUMBER	CONCENTRATION (%)	EXPOSURE LIMITS
Potassium Perchlorate	7778-74-7	100%	No occupation exposure limits established by OSHA, ACGIH, or NIOSH

V: FIRE AND EXPLOSION DATA:

FLASH AND EXPLOSION HAZARD: Negligible fire hazard when exposed to heat or flame.
EXTINGUISHING MEDIA: Water ONLY. No dry chemical, carbon dioxide or halon.
SPECIAL FIRE FIGHTING PROCEDURES: Use flooding quantities of water as fog. Cool containers with flooding amounts of water, apply from as far a distance as possible. Evacuate to a radius of 2500 feet. Move containers from fire area if you can do so without risk. Apply cooling water to sides of containers exposed to flames until well after fire is out. For massive fires in cargo areas, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
UNUSUAL FIRE / EXPLOSION HAZARDS: Thermal decomposition releases toxic fumes of chlorine and oxide of potassium.
WARNING: Oxidizers decompose, especially when heated, to yield oxygen or other gases, which will increase the burning rate of combustible matter. Contact with easily oxidizable, organic, or other combustible materials may result in ignition, violent combustion or explosion.

VI: HUMAN HEALTH DATA:

ROUTES OF ENTRY: Inhalation, skin eye
HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE: May cause blood disorders.
ACUTE EFFECTS:

-Inhalation: May cause irritation to the mucous membranes.
-Skin: May cause irritation with redness and pain.
-Eye: May cause irritation with redness and pain. Solution may cause mild reversible damage.
-Ingestion: No specific data available. Perchlorates may produce nausea, vomiting, abdominal pain, diarrhea, and methemoglobinemia with hemolytic anemia. Other effects may include liver, kidney and bone marrow effects.

CHRONIC EFFECTS OF OVEREXPOSURE:

-Inhalation: No data available.
-Skin: Repeated or prolonged exposure to skin irritants may cause dermatitis.
-Eye: Repeated or prolonged exposure to eye irritants may result in conjunctivitis.
-Ingestion: May cause bone marrow damage, resulting in pancytopenia, and multiple cytopenia. Fatal aplastic anemia had occurred in at least four patients. Other effects include kidney damage, and lymph node disease. Animals fed potassium perchlorate as 1% of their diets for 83 days exhibited reduced growth rate and depleted thyroid iodine.

CARCINOGENICITY: IARC-not listed; NTP-lot listed; OSHA-not listed.

VII: EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.
FIRST AID FOR SKIN: Remove contaminated clothing and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

FIRST AID FOR INHALATION: Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Keep the person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.
FIRST AID FOR INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. Treat symptomatically and supportively. Get medical attention immediately.
NOTE TO PHYSICIAN: Not specific antidote.

VIII: EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS: Employee should wear splash proof or dust-resistant safety goggles to prevent eye contact with this substance.
SKIN PROTECTION REQUIREMENTS: Employee must wear appropriate protective gloves to prevent contact with this substance. Employee should wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.
RESPIRATORY REQUIREMENTS: The following respirators are recommended based on information found in the physical data, toxicity and health effects sections. They are ranked in order from minimum to maximum respiratory protection. The specific respirator selected must be based on contamination levels found in the work place, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by NIOSH and MSHA. (Mine Safety and Health Administration)

-Any dust and mist respirator
-Any air-purifying respirator with a high-efficiency particulate filter
-Any powered air-purifying respirator with a dust and mist filter
-Any powder air-purifying respirator with a high-efficiency particulate filter.
-Any type “C” supplied-air respirator with a high-efficiency particulate filter.
-Any self-container breathing apparatus.
FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:
-Any self-container breathing apparatus that has a full-face piece and is operated in a pressure-demand or other positive=pressure mode.
-Any supplied air respirator that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-container breathing apparatus operated in pressure-demand or other positive-pressure mode.

VENTILATION REQUIREMENTS: Provide a local exhaust ventilation system.
ADDITIONAL PROTECTIVE MEASURES: Where there is any possibility that an employee’s eyes may be exposed to this substance, the employer should provide an eye wash station within the immediate work area for emergency use.

IX: REACTIVITY DATA:

HAZARDOUS POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.
CONDITIONS TO AVOID: Avoid contact with combustible materials (wood, paper, fuel, oils, etc); ignition or explosion may result. Avoid contamination of water resources.
DECOMPOSITION PRODUCTS: Thermal decomposition releases toxic fumes of chlorine and oxides of potassium.

INCOMPATIBILITIES: POTASSIUM PERCHLORATE:

-Aluminum + Aluminum Fluoride: Increases ease of ignition
-Aluminum + Barium Nitrate + Potassium Nitrate + Water: Mixture exploded after 24 hours under water.
-Aluminum + Magnesium: Explosion hazard
-Aluminum Powder + Titanium Dioxide: The mixture exploded violently during mixing
-Antimony: Fire hazard
-Arsenic: Fire hazard
-Barium Chromate + Tungsten and/or Titanium: Ignition source
-Boron + Magnesium + Silicon Rubber: Ignites with heat.
-Combustible Materials: Fire and explosion hazard
-Cotton Lint: Explosion hazard @ 240 C
-Ethanol: Explosion Hazard with heat
-Ethylene Glycol: Explosion hazard at 245 C
-Ferrocenium Diamminetetrakis (Thiocyanato-N) Chromate (1-): Increases the rate of thermal decomposition
-Fluorine: May produce an explosion, unstable compound
-Furfural: Explosion hazard at 270 C
-Hydrazine: May explode
-Lactose: may explode
-Magnesium: fire and explosion hazard
-Metals: when perchlorates are mixed with finely divided metals the mixture may be explosive
-Molybdenum Powder: May ignite at 330 C
-Nickel + Titanium: Explosion hazard
-Nickel Powder: Friction-sensitive, causing severe explosion
-Organic Matter: When perchlorates are mixed with finely divided organic matter they may be explosive.
-Potassium Hexacyanocobaltate (3-): Mixtures serve as gasless pyrotechnic compositions
-Reducing agents: Explosion hazard
-Sulfur: May explode by moderate impact
-Titanium Hydride: Pyrotechnic mixture

X: SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES: Keep combustibles (wood, paper, oil etc.) away from spilled material. Do not touch spilled material. For small dry spills, with clean shovel place material into clean, dry container and cover. Remove containers from spill area. For small liquid spills, take up with sand, earth or other absorbent material and place into containers for later disposal. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry. WASTE DISPOSAL METHOD: Observe all federal, state and local regulations when disposing of this substance.

XI: SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TERMPERATURE: Store in a cool, dry, well ventilated area. Observe all federal, state and local regulations when storing this substance. Consult NFPA publication 43A, Storage of Liquid and Solid Oxidizing Materials for Storage Requirements.

SPECIAL SENSITIVITY: Store away from incompatible substances. (See section IX)
HANDLING/STORAGE PRECAUTIONS: Store separate from acids, reducing agents, and combustibles

XII: SHIPPING INFORMATION:

PROPER SHIPPING NAME: Potassium Perchlorate, Solid
HAZARD CLASS OR DIVISION: 5.1
UN/NA NUMBER: UN1489
PACKAGING GROUP: II
DOT PRODUCT RQ lbs (kg): not listed
HAZARD LABEL(S): Oxidizer
HAZARD PLACARD(S): Oxidizer
SUBSIDIARY PLACARD: None

XIII: TOXICITY DATA:

Fetal abnormalities have been reported from prolonged oral administration to rats, rabbits and guinea pigs during pregnancy.
No data available for the following: Environmental Impact Rating (0-4), Acute Aquatic Toxicity, Degradability, Log Bioconcentration Factor (BCF)

XIV: FEDERAL REGULATORY INFORMATION:

U.S. INFORMATION

CALIFORNIA PROPOSITION 65: This product does not contain materials which the State of California has found to cause cancer, birth defects or reproductive harm.

CERCLA: **100 pound CERCLA Section 103 Reportable Quantity**. Disposal must be in accordance with standards applicable to generators of hazardous waste, 40 CFR 262. EPA Hazardous Waste Number D001.

TSCA STATUS: Chemicals in this product are listed on the TSCA Inventory List.

SARA TITLE III SECTION 311/312
Acute Hazard: Y
Chronic Hazard: N
Fire Hazard: Y
Reactivity Hazard: Y
Sudden Release Hazard: N

The information herein is given in good faith, but no warranty, express or implied, is made.