

**Section I - General Information**

(000000-000000 - 0688)

**Date of Issue:**  
12/27/2007 12:00:00 AM  
**Chemical Name & Synonyms:**  
N/A  
**Chemical Family:**  
Chlorinated hydrocarbon mixture  
**Manufacturer Name:**  
CERTIFIED LABS, DIV. OF NCH CORP.  
**Manufacturer Address:**  
BOX 152170  
IRVING, TEXAS 75015  
**Prepared By:**  
M MCDOWELL/CHEMIST

**Supercedes:**  
8/31/2007 12:00:00 AM  
**Trade Name & Synonyms:**  
SAF-SOL 20/20  
**Formula is a mixture:** [√]

**Product Code Number:** 0688  
**Emergency Phone Number:** 800-424-9300

**Section II - Hazardous Ingredients**

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS

Chemical Name (Ingredients)	Hazard	TLV	PEL	STEL	CAS #
TETRACHLOROETHYLENE	CARC/IRR	25 ppm 1	100 ppm 2	100 ppm 1	127-18-4
CARBON TETRACHLORIDE	CARC/IRR	5 ppm 1	10 ppm 2	10 ppm 1	56-23-5
METHYLENE CHLORIDE	CARC/IRR	50 ppm 1	25 ppm 2	125 ppm 1	75-09-2
PROPYLENE OXIDE	\$	2 ppm 1	100 ppm 2	N/E	75-56-9
ALIPHATIC PETROLEUM HYDROCARBONS	IRRITANT	100 ppm \$1	500 ppm \$2	N/E	*
\$ CARC/SENS/IRR					
* 64742-47-8, 64742-88-7					

**Section III - Physical Data**

**Boiling Point (°F):**154  
**Vapor Pressure (mm Hg):**118.3  
**Vapor Density (Air=1):**3.0  
**pH @ 100% :N/A**  
**% Volatile by Volume:**100  
**H<sub>2</sub>O Solubility:**Negligible

**Specific Gravity (H<sub>2</sub>O=1):**1.053  
**Color:**Colorless  
**Odor:**Ether  
**Clarity:**Transparent  
**Evaporation Rate (BuAc=1):**6.3  
**Viscosity:**Non-viscous

**Section IV - Fire and Explosion Hazard**

**Flash Point:** >200°F  
**Flammable Limits:** Methylene Chloride  
**LEL:** 0.7%  
**Method Used:** Seta-flash  
**UEL:** 19%  
**Aerosol Level (NFPA 30B):** N/A

**Extinguishing Media:**

<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> Alcohol Foam	<input type="checkbox"/> CO2
<input checked="" type="checkbox"/> Dry Chemical	<input checked="" type="checkbox"/> Water Spray	<input type="checkbox"/> Other

**NFPA 704 Hazard Rating:**

4-Extreme	Health: 2
3-High	Flammability: 1
2-Moderate	Instability: 0
1-Slight	Special:
0-Insignificant	

**Special Fire Fighting Procedures:**

Firefighters should wear a self-contained breathing apparatus and full protective gear. Extinguishing media should be chosen based on the nature of the surrounding fire. Cool fire-exposed containers with water spray to prevent bursting.

**Unusual Fire and Explosion Hazards:**

Vapors are heavier than air and may travel to distant and/or low-lying sources of ignition and flashback. The use of water spray (fog), while effective, may cause frothing and foaming. Never use a water jet as this will just spread the fire. Use care as spills may be slippery.

**Section V - Health and Hazard Data**

**Threshold Limit Value:**  
Not Established for Mixture. See Section II.

**Effects of Overexposure:**

**Acute: (Short Term Exposure)**

**EYE CONTACT:** Causes severe irritation seen as stinging, tearing, redness, and a burning sensation. Prolonged contact may cause corneal damage.  
**SKIN CONTACT:** Causes irritation seen as itching and redness. Prolonged or repeated contact may cause dryness, flaking, and burns. May cause allergic skin reactions seen as delayed skin rash which may be followed by blistering, scaling, and other skin effects. Product may be absorbed through the skin in harmful amounts.  
**INHALATION:** May cause respiratory irritation seen as coughing and sneezing. Inhalation may cause central nervous system effects such as headache, dizziness, drowsiness, weakness, unconsciousness, possible anesthetic effects from central nervous system depression, and may be fatal. A single brief exposure to levels above 6000 ppm may be immediately fatal. Excessive exposure may potentially increase sensitivity to epinephrine and increase myocardial irritability. Excessive exposure may cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen. Initial symptoms are characterized by vomiting, headache, blurring of vision, ataxia, weakness, dizziness, stupor, rapid heartbeat, syncope, dyspnea, respiratory distress, and death due to anoxia. This can be additive to the increase caused by smoking and other carbon monoxide sources. Alcohol consumed before or after exposure may increase adverse effects.  
**INGESTION:** Causes irritation with possible nausea, vomiting, and diarrhea. May cause central nervous system effects similar to inhalation. Ingestion and subsequent vomiting of this product can lead to aspiration of the product into the lungs which can cause damage and may be fatal. Alcohol may exacerbate the effects of overexposure. Avoid alcohol consumption.

**Chronic: (Long Term Exposure)**

May cause skin sensitization in some individuals. Exposure may result in cardiac sensitization and increase the risk of cardiac arrest. May cause kidney or liver damage. On rare occasions, prolonged and repeated exposure to hydrocarbon mist poses a risk of chronic lung inflammation. This condition is usually asymptomatic as a result of repeated small aspirations. Shortness of breath and coughing are the most common symptoms. Aspiration may lead to pulmonary edema and hemorrhage and may be fatal. Signs of lung involvement include increased respiration and heart rates as well as a bluish discoloration of the skin. Chronic skin contact may promote dermatitis and oil acne. In rarer cases, an increased sensitivity to sunlight (photosensitivity) may occur. Medical conditions aggravated by exposure: pre-existing respiratory and skin conditions such as asthma, emphysema, and dermatitis; pre-existing liver and kidney diseases; and rhythm disorders of the heart. Carboxyhemoglobinemia may aggravate any pre-existing condition sensitive to a decrease in available oxygen, such as chronic lung diseases, coronary artery diseases, or anemias. Target organs: Liver, kidneys, heart, blood, blood-forming organs, and central nervous system. The primary routes of exposure are skin and eye contact.

Primary Routes of Entry

Inhalation                       Ingestion                       Absorption

**Emergency First Aid Procedures:**

**Inhalation:**

Remove from the area to fresh air. If not breathing, clear the airway and start mouth to mouth artificial respiration. Get immediate medical attention.

**Eye Contact:**

Immediately rinse the eyes with water. Remove any contact lenses and continue flushing for at least 15 minutes. Hold the eyelids apart to ensure rinsing of the entire surface of the eyes and lids with water. Get immediate medical attention.

**Skin Contact:**

Wash affected areas with large amounts of soap and water for 15 minutes. Remove contaminated clothing and shoes. Seek medical attention if irritation persists. Wash clothing and clean shoes before re-use.

**Ingestion:**

Give 3 to 4 glasses of water, but DO NOT induce vomiting. If vomiting occurs, give fluids again. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

**Notes to Physician:**

Chlorinated Hydrocarbons may sensitize the heart to Epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators. Ingestion and subsequent vomiting of this product can lead to aspiration of the product into the lungs which can cause damage and may be fatal. Depending on the amount ingested and retained as well as the toxicity of the product, gastric lavage should be considered. Keep patient's head below hips to prevent pulmonary aspiration. If comatose, a cuffed endotracheal tube will prevent aspiration.

**Section VI - Toxicity Information**

Product Contains Chemicals Listed as Carcinogen or Potential Carcinogen By:

IARC                       NTP                       OSHA                       ACGIH                       Other

VOC content: 45% by weight; 61.4% by volume; 473.9 g/L

**TETRACHLOROETHYLENE**

IHL-RAT LC<sub>50</sub>: 34,200 mg/m<sup>3</sup>/8h 3.  
 ORL-RAT LD<sub>50</sub>: 2629 mg/kg 3.  
 SKN-RBT LD<sub>50</sub>: >3228 mg/kg 3.  
 SKN-RBT SDT: 500 mg/24h mild 3.  
 EYE-RBT SDT: 500 mg/24h mild 3.  
 EYE-RBT: severe 4.

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans

IARC group 2A

NTP: Part B. Reasonably anticipated to be human carcinogen.

**CARBON TETRACHLORIDE**

ORL-RAT LD<sub>50</sub>: 2350 mg/kg 4.  
 IHL-RAT LC<sub>50</sub>: 8000 ppm 4.  
 SKN-RAT LD<sub>50</sub>: 5070 mg/kg 4.

ACGIH: A2 - Suspected human carcinogen.

IARC group 2B

NTP: Part B. Reasonably anticipated to be human carcinogen.

**METHYLENE CHLORIDE**

ORL-HMN LDL<sub>0</sub>: 357 mg/kg 3.  
 ORL-RAT LD<sub>50</sub>: 1600 mg/kg 3.  
 SKN-RBT SDT: 800 mg/24h severe 3.  
 EYE-RBT SDT: 162 mg moderate 3.  
 IHL-RAT LC<sub>50</sub>: 52 g/m<sup>3</sup> 3.  
 IHL-HMN TCL<sub>0</sub>: 500 ppm/8h 3.

**Tumorigenic data**

IHL-RAT TCL<sub>0</sub>: 3500 PPM/6H/2Y-I 3.

**Reproductive data**

IHL-RAT TCL<sub>0</sub>: 4500 ppm/24h/female 1-17 days after conception 3.

Methylene Chloride has been evaluated for possible cancer causing effects in laboratory animals. Inhalation studies at concentrations of 2000 and 4000 ppm increased the incidence of malignant liver and lung tumors in mice. Three inhalation studies of rats have shown increased incidence of benign mammary gland tumors in female rats at concentrations of 500 ppm and above and increases in benign mammary gland tumors in males at concentrations of 1500 ppm and above. Rats exposed to 50 and 200 ppm via inhalation showed no increased incidence of tumors. Mice and rats exposed by ingestion at levels up to 250 mg/kg/day lifetime and hamsters exposed via inhalation to concentrations up to 3500 ppm lifetime did not show an increased incidence of tumors. 4.

Epidemiology studies of 751 humans chronically exposed to Methylene Chloride in the workplace of which 252 were exposed for a minimum of 20 years did not demonstrate any increase in deaths caused by cancer or cardiac problems. A second study of 2227 workers confirmed these results. 4.

Laboratory animal studies on mice, rats, and rabbits have been conducted to evaluate the potential reproductive and developmental effects of Methylene Chloride exposures. Methylene Chloride exposure has not been shown to cause teratogenic effects (birth defects) in experimental animals. 4.

ACGIH group A3: confirmed animal carcinogen with unknown relevance to humans

IARC group 2B: animal sufficient evidence; human inadequate evidence

NTP: reasonably anticipated to be a human carcinogen

**PROPYLENE OXIDE**

ORL-RAT LD<sub>50</sub>: 380 mg/kg 4.  
 IHL-RAT LC<sub>50</sub>: 4000 ppm/4h 4.  
 SKN-RBT LD<sub>50</sub>: 1500 uL/kg 4.  
 SKN-RBT SDT: 50 mg/6m severe 4.  
 EYE-RBT SDT: 20 mg/24h moderate 4.

ACGIH group A3: confirmed animal carcinogen with unknown relevance to humans

IARC group 2B: animal sufficient evidence; human inadequate evidence

NTP: reasonably anticipated to be a human carcinogen

**ALIPHATIC PETROLEUM HYDROCARBONS**

ORL-RAT LD<sub>50</sub>: >25 ml/kg 3.  
 IHL-RAT LC<sub>50</sub>: >710 ppm/4hr 3.  
 SKN-RBT LD<sub>50</sub>: 5 ml/kg 3.  
 SKN-RBT: moderate irritation 3.  
 EYE-RBT: negligible irritation 3.

Hydrocarbon mists derived from petroleum distillates are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term

repeated exposures to high concentrations well above applicable workplace exposure levels include lung inflammatory reaction, lipid granuloma formation, and lipid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations at or near current work place exposure levels produced no significant toxicological effects. 3.

At very high oral doses, this product caused reversible damage to the stomach, liver, and kidney (male only) of rats. These effects are not relevant to humans at occupational levels of exposure. Animal data suggest that slight anemia, adaptive liver changes, and kidney toxicity may be caused by repeated overexposure to some similar solvents. The significance of this to humans is unknown. 3.

**Section VII - Reactivity Data**

<p><b>Stability</b></p> <p><input checked="" type="checkbox"/> Stable                      <input type="checkbox"/> Unstable</p> <p><b>Conditions to Avoid:</b> Direct sunlight and other ultraviolet sources. Avoid heat, hot surfaces, sparks, and open flames.</p>	<p><b>Hazardous Polymerization</b></p> <p><input checked="" type="checkbox"/> Will not occur                      <input type="checkbox"/> May occur</p> <p><b>Conditions to Avoid:</b> N/A</p>
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**Incompatibility (Materials to Avoid):**

Strong oxidizing agents such as Chlorine bleach, Hydrogen Peroxide, Permanganates, and Chromates. Acids and Bases; metals such as Zinc powders, Zinc, Aluminum powders, Magnesium powders, Potassium, Barium, and Sodium; Amines, Oxygen, water, Methanol, aromatic hydrocarbons, 1,1,1-Trichloroethane. Forms an explosive mixture with Nitric Acid.

**Hazardous Decomposition Products:**

Oxides of Carbon, Hydrogen Chloride, Chlorine, Phosgene, May react with freshly galvanized surfaces to produce highly toxic Dichloroacetylene.

**Section VIII - Spill Or Leak Procedures**

**Steps to be Taken if Material is Released or Spilled:**

Wear appropriate protective clothing. Eliminate all sources of ignition and ventilate the area. Use only non-sparking equipment. Use care as spills may be slippery. Shut off source of leak. Dike and contain spill. Absorb with an inert material and transfer all material into a properly labeled container for disposal. Prevent product from contaminating soil or from entering sewage and drainage systems and bodies of water. Flush area with water.

**Waste Disposal Method(s):**

Dispose of in accordance with all Federal, state, and local regulations.

**Neutralizing Agent:**

N/A

**Section IX - Special Protection Information**

**Required Ventilation:**

Local ventilation is recommended to control exposure from operations that can generate excessive levels of mists or vapors. Local ventilation is preferred, because it prevents dispersion into work areas by controlling it at its source.

**Respiratory Protection:**

Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2-1992). For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH approved half-facepiece respirator equipped with appropriate chemical cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in publication No. 87-116 or ANSI Z88.2-1992.

**Glove Protection:**

Viton or Polyvinyl Alcohol gloves should be worn. Ensure compliance with OSHA's personal protective equipment (PPE) standard for hand protection, 29 CFR 1910.138.

**Eye Protection:**

Chemical goggles should be worn when handling. Ensure compliance with OSHA's Personal Protective Equipment (PPE) standard for eye and face protection, 29 CFR 1910.133.

**Other Protection:**

Wear protective clothing when handling. Remove soaked clothing and shoes. A safety shower and an eyewash station should be available. Wash clothing and clean shoes before re-use.

**Section X - Storage and Handling Information**

<p><b>Storage Temperature</b></p> <p>Max: 120°F                      Min: 35°F</p>	<p><b>Storage Conditions</b></p> <p><input checked="" type="checkbox"/> Indoors                      <input type="checkbox"/> Outdoors                      <input type="checkbox"/> Heated                      <input type="checkbox"/> Refrigerated</p>
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**Precautions to be Taken in Handling and Storing:**

Always store material in its original container. Keep the container tightly closed when not in use. Do not store in aluminum, aluminum alloys, plastics, or zinc. Use with caution around heat, sparks, pilot lights, static electricity, and open flame. Empty containers may contain product residues which may exhibit the hazards of the product. To avoid possible explosion, do not pressurize, cut, weld, solder, drill, grind, or expose empty containers to heat, hot surfaces, sparks, or open flames. Ground and bond container when handling near flammable vapors and all sources of ignition.

**Other Precautions:**

Keep out of reach of children. Read the entire label before using the product. Follow the label directions.

**Section XI - Regulatory Information**

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Upper % Limit</u>
TETRACHLOROETHYLENE	127-18-4	35
CARBON TETRACHLORIDE	56-23-5	1
METHYLENE CHLORIDE	75-09-2	25
PROPYLENE OXIDE	75-56-9	1

Those Ingredients listed above are subject to the reporting requirements of 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Please call 1-800-527-9919 for additional information if you are a California customer. This MSDS is not intended for users in the state of California.

### Section XII - References

1. Threshold Limit Values for chemical substances and physical agents and biological exposure indices, ACGIH, 2007.
2. OSHA PEL.
3. Vendor's MSDS.
4. Registry of toxic effects of chemical substances, CCINFOWeb, 2007.
5. European Chemical Substances Information System (ESIS), International Uniform Chemical Information Database (IUCLID) Chemical Data Sheets.
6. ChemADVISOR, Inc. Database Release: 2007-4.

All the components of this product are in compliance with the Toxic Substances Control Act (TSCA) and are either listed on the TSCA inventory or otherwise exempted from listing.

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IRR: Irritant, OSHA: Occupational Safety & Health Administration, IARC: International Agency for the Research on Cancer, TOX: Toxic, NFPA: National Fire Protection Association, ppm: Parts Per Million, UEL: Upper Explosion Limit, STEL: Short-term Exposure Limit, HMN: Human, mg/m<sup>3</sup>, IHL: Inhalation, COMB: Combustible, CORR: Corrosive, MUT: Mutagenic, CARC: Carcinogenic, N/A: Not Applicable, TLV: Threshold Limit Value, N/E: Not Established, ORL: Oral, FLAM: Flammable, ASPHYX: Asphyxiant, C.O.C.: Cleveland Open Cup, PNOR: Particles Not Otherwise Regulated, LEL: Lower Explosion Limit, mg/L: Milligrams per Liter, PNOS: Particles Not Otherwise Specified, g/L: Grams per Liter, PMCC: Pensky-Martin Closed Cup, NTP: National Toxicology Program, µg/L: Micrograms per Liter, TCC: Tagliabue Closed Cup, SEV: Severe, RBT: Rabbit, INV: Intravenous, ACGIH: American Conference of Governmental Industrial Hygienists, PEL: Permissible Exposure Limit, MOD: Moderate, IPT: Intraperitoneal, gm/kg: Grams per Kilogram, C.C.C.: Cleveland Closed Cup, SKN: Skin, Milligrams per Cubic Meter, mg/kg: Milligrams per Kilogram, VOC: Volatile Organic Compound, SDT: Standard Draize Test, MSE: Mouse, GPG: Guinea Pig.  
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