

List of Hazardous Materials To Be Used at the Facility

Hazardous Material	Relative Toxicity <sup>1</sup> and Hazard Class <sup>2</sup>	Permissible Exposure Limit	Storage Description; Capacity	Storage Practices and Special Handling Precautions	Possible Uses
Hydrogen	Low toxicity; Hazard class – Flammable gas	None Established	In generator cooling loop and “tube trailer”; total inventory of up to 63,000 SCF (335 pounds) if hydrogen cooled STG is used	Pressure safety tank, crash posts, pressure relief valves	Generator cooling
Sodium Hydroxide, 50% solution	High toxicity; Hazard class – Corrosive	PEL: 2 mg/m <sup>3</sup>	Carbon steel tank; 8,500 gallons	Isolated from incompatible chemicals and secondary containment	Water treatment; Condensate polishing
Sodium Hypochlorite, 12.5% solution	High toxicity; Hazard class – Poison-B, Corrosive	Workplace Environmental Exposure Limit (WEEL) - STEL: 2 mg/m <sup>3</sup> PEL: 0.5 ppm (TWA), STEL: 1 ppm as Chlorine TLV: 1 ppm (TWA), STEL: 3 ppm as Chlorine	Plastic tanks; 17,000 gallons total inventory (2 x 8,500 gallons)	Secondary containment	Raw water biocide; Potable water biocide; cooling water biocide
Sulfuric Acid, 29.5% solution	High toxicity; Hazard class – Corrosive, water reactive	PEL: 1 mg/m <sup>3</sup>	Contained in batteries; 2,000 gallons total inventory	Isolated from incompatible chemicals and secondary containment	Battery electrolyte
Sulfuric Acid, 93% solution	High toxicity; Hazard class – Corrosive, water reactive	PEL: 1 mg/m <sup>3</sup>	Lined, carbon steel tanks; 16,000 gallons total inventory (2 x 8,000 gallons)	Isolated from incompatible chemicals, and secondary containment	Cooling tower anti-scaling (pH control); wastewater neutralization
Carbon Dioxide	Low toxicity; Hazard class – Non-flammable gas	TLV: 5,000 ppm (9,000 mg/m <sup>3</sup> ) TWA	Carbon steel tank, 15 tons maximum onsite inventory	Carbon steel tank with crash posts	Fire suppression
Lube Oil	Low toxicity Hazard class – NA	None established	Carbon steel tanks, 10,000 gallons in equipment and piping, additional maintenance inventory of up to 550 gallons in 55- gallon steel drums.	Secondary containment for tank and for maintenance inventory	Equipment lubrication

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Mineral Insulating Oil	Low toxicity Hazard class – NA	None established	Carbon steel transformers; total onsite inventory of 32,000 gallons	Used only in transformers, secondary containment for each transformer	Large capacity transformers
Diesel Fuel	Low toxicity; Hazard class – Combustible liquid	PEL: none established TLV: 100 mg/m <sup>3</sup>	Above ground Carbon steel tanks (21,000 gallons)	Stored in two 10,000 gallon tanks, secondary containment, plus two day tanks, one for each diesel fire pump.	Emergency generators and fire pumps
Nitrogen	Low toxicity; Hazard class – Non-flammable gas	None established	Carbon steel tank; 7,500 pounds total inventory	Carbon steel tank with crash posts	Blanketing and layup of steam plant
Hydraulic fluid	Low to moderate toxicity; Hazard class – Class IIIB combustible liquid	TWA (oil mist): 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	Carbon steel tanks and sumps; 500 gallons in equipment, maintenance inventory of 110 gallons in 55-gallon steel drums	Found only in equipment, with a small maintenance inventory. Maintenance inventory stored within secondary containment.	Steam turbine controls system
Water treatment chemical NALCO Tri-Act 1800, or equal (10%) Monoethanolamine (10 – 30%) Methoxypropylamine (10 – 30%)	High toxicity; Hazard class – Corrosive, Class II Combustible liquid	Cyclohexylamine = TLV: 10 ppm (41 mg/m <sup>3</sup> ) Monoethanolamine = TLV: 3 ppm (7.5 mg/m <sup>3</sup> ) TWA: 3 ppm (7.5 mg/m <sup>3</sup> ) STEL: 6 ppm (15 mg/m <sup>3</sup> ) Methoxypropylamine = TLV: 5 ppm TWA STEL: 15 ppm	Plastic totes, 2 x 400 gallons each	Inventory management, isolated from incompatible chemicals and secondary containment	Condensate pH management
Water treatment chemical NALCO Elimin-Ox Carbohydazide (5 - 10%), or equal	Moderate toxicity; Hazard class – Sensitizer	Carbohydazide = PEL: none established	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Condensate and feedwater O <sub>2</sub> management

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Water treatment chemical NALCO 3D Trasar 3DT185, or equal Phosphoric Acid (60 -100%)	High toxicity; Hazard class – Corrosive	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Cooling water corrosion control
Water treatment chemical NALCO 3D Trasar 3DT177, or equal Phosphoric acid (30%)	Moderate toxicity; Hazard class – Irritant	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Cooling water corrosion control
Water treatment chemical NALCO 3D Trasar 3DT190, or equal	Low toxicity; Hazard class – Irritant	None established for mixture	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Cooling water scale control
Water treatment chemical NALCO Acti-Brom (R) 7342, or equal Sodium bromide	Low toxicity; Hazard class – Irritant	Sodium bromide = PEL: none established	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Cooling water oxidizing biocide
Water treatment chemical NALCO pHFreedom® 5200M, or equal Sodium salt of phosphonomethylated diamine	Low to moderate toxicity; Hazard class – Irritant	Sodium salt of phosphonomethylated diamine = PEL: none established	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Brine concentrator preheater scale control
Water treatment chemical NALCO PCL-1346, or equal	Low toxicity; Hazard class – Irritant	None established for mixture	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	Cooling water silica scale control

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Water treatment chemical NALCO Permacare (R) PC-7408, or equal Sodium bisulfite	Low toxicity; Hazard class – Irritant	Sodium bisulfite = PEL: none established; TLV: 5 mg/m <sup>3</sup> TWA	Plastic totes, 2 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment	RO system – chlorine scavenger
Water treatment chemical NALCO BT-3000, or equal Sodium hydroxide Sodium tripolyphosphate	High toxicity; Hazard class – Corrosive	Sodium hydroxide = PEL: 2 mg/m <sup>3</sup> Sodium tripolyphosphate = PEL: none established	Plastic totes, 2 x 400 gallons each	Inventory management, isolated from incompatible chemicals and secondary containment	Boiler drum pH control
Water treatment chemical NALCO 8338, or equal Sodium nitrite Sodium tolytriazole Sodium hydroxide	Moderate toxicity; Hazard class – Toxic	Sodium nitrite = PEL: none established Sodium tolytriazole = PEL: none established Sodium hydroxide = PEL: 2 mg/m <sup>3</sup>	Plastic totes, 2 x 400 gallons each	Inventory management, isolated from incompatible chemicals and secondary containment	Closed loop cooling system corrosion inhibitor
Welding gas Acetylene	Moderate toxicity; Hazard class – Toxic	PEL: none established	Steel cylinders: 200 cubic foot each, 800 cubic foot total on site	Inventory management, isolated from incompatible chemicals,	Welding gas
Welding gas Oxygen	Low toxicity; Hazard class – Oxidizer	PEL: none established	Steel cylinders: 200 cubic foot each, 800 cubic foot total on site	Inventory management, isolated from incompatible chemicals	Welding gas
Welding gas Argon	Low toxicity; Hazard class – Nonflammable gas	PEL: none established	Steel cylinders: 200 cubic foot each, 800 cubic foot total on site	Inventory management	Welding gas
Activated Carbon	Non-toxic (when unsaturated), low to moderate toxicity when saturated, depending on the adsorbed material; Hazard class – combustible solid	TWA (total particulate): 15 mg/m <sup>3</sup> TWA (respirable fraction): 5 mg/m <sup>3</sup> TLV (graphite, all forms except graphite fibers): 2 mg/m <sup>3</sup> TWA	Used in two x 2,000-lb canisters, 4,000 pounds total inventory, no additional storage	No excess inventory stored onsite, prompt disposal when spent	Production of potable water

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Herbicide Roundup <input type="checkbox"/> or <input checked="" type="checkbox"/>	Low toxicity; Hazard class - Irritant	Isopropylamine salt of glyphosphate = no specific occupational exposure has been established	Brought on site by licensed contractor, used immediately. Maximum of 1 gallon stored onsite.	Inventory management, isolated from incompatible chemicals	Weed management
Soil stabilizer Active ingredient: acrylic or vinyl acetate polymer or equivalent	Non-toxic; Hazard class - NA	None established	Supplied in 55-gallon drums or 400-gallon totes, used immediately. Maximum onsite storage of 55 gal	Inventory management, isolated from incompatible chemicals	Dust control
Aluminum Sulfate (50 wt%), or Ferric Chloride (50 wt%), or Ferric Sulfate (50 wt%)	Moderate Toxicity Hazard class - Corrosive	PEL: 2 mg(Al)/m <sup>3</sup>	Plastic tank, 6,000 gallons onsite storage.	Inventory management, isolated from incompatible chemicals	Water treatment system flocculating agent
Sodium Sulfide / Sodium Hydrosulfide	Moderate Toxicity Hazard class - Corrosive	TWA: 1 0ppm (1 4mg/m <sup>3</sup> ) STEL: 1 5ppm (21mg/m <sup>3</sup> )	Brought on site by licensed contractor. No storage onsite	No excess inventory stored onsite, prompt disposal when spent	Water treatment; precipitate heavy metals
Aqueous Ammonia (19% NH <sub>3</sub> by weight)	High Toxicity Hazard class - Corrosive Liquid	TWA: 25ppm STEL: 35ppm PEL: 50ppm	Brought on site by licensed contractor. No storage onsite	No excess inventory stored onsite, prompt disposal when spent	Boiler drum, steam, and feedwater conditioner (pH control)
NALCO Permcare PC-33 or equal	Low Toxicity Hazard class – Corrosive Liquid	None established for product. Ingredient limits appear below. ACGIH/TLV: Sodium Hydroxide CEILING: 2 mg/m <sup>3</sup> OSHA/PEL: Sodium Hydroxide CEILING: 2 mg/m <sup>3</sup>	110 gallons (55 gallon drums)	Use plastic drums, inventory management and isolate from incompatible chemicals.	RO membrane high pH cleaners
NALCO Permcare PC-77, or equal	Low Toxicity Hazard class – Irritant	None established (contains no hazardous ingredients)	110 gallons (55 gallon drums)	Use plastic drums, inventory management and isolate from incompatible chemicals.	RO membrane low pH cleaners
NALCO Permcare PC-1 91, or equal	Low Toxicity Hazard class - Irritant	None established (contains no hazardous ingredients)	Plastic Totes, 400 gallon	Inventory management, isolated from incompatible chemicals and secondary containment	RO Antiscalant

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NALCO Permacare PC-11, or equal	High Toxicity Hazard class – Corrosive Liquid	None established for product. Ingredient limits appear below. Manufacturer's Recommendation: Dibromoacetonitrile CEILING: 0.1 ppm (Skin) 2,2-Dibromo-3-nitrilopropionamide CEILING: 2 mg/m <sup>3</sup> AIHA/WEEL: Polyethylene Glycol TWA: 10 mg/m <sup>3</sup>	Plastic Totes, 400 gallon	Inventory management, isolated from incompatible chemicals and secondary containment	Membrane cleaner and preservative
Propylene Glycol (Antifreeze)	Low Toxicity Hazard class – NA	None established	Plastic totes, 25 gallons onsite storage	Inventory management, isolated from incompatible chemicals	Antifreeze; closed cooling system anti-corrosive – compatible with different types of metals

<sup>1</sup> Low toxicity is used to describe materials with an NFPA Health rating of 0 or 1. Moderate toxicity is used describe materials with an NFPA rating of 2. High toxicity is used to describe materials with an NFPA rating of 3. Extreme toxicity is used to describe materials with an NFPA rating of 4.

<sup>2</sup> NA denotes materials that do not meet the criteria for any hazard class defined in the 1997 Uniform Fire Code.

<sup>3</sup> Proprietary names are listed to provide indicative chemical product but is not intended to limit supplier, brand or product.

### Chemical Information—Molten Salt

Name	General Description and Composition	Physical Properties and Hazards
Potassium Nitrate – Standard Grade – Thermosolar – Crystals	Chemical Formula = KNO <sub>3</sub> CAS Number = 7757-79-1 Appearance = White Crystals Anticaking Agent = None Guaranteed Analysis = min 97.6% KNO <sub>3</sub> max 0.6% Cl, 0.3% Mg, 0.02% NO <sub>2</sub> , 0.75% SO <sub>4</sub> , 0.10% CO <sub>3</sub> , 0.20% OH	Melting Point = -333 °C Specific Gravity = 2.110
Potassium Nitrate – Technical Grade – Thermosolar – Crystals	Chemical Formula = KNO <sub>3</sub> CAS Number = 7757-79-1 Appearance = White Crystals Anticaking Agent = None Guaranteed Analysis = min 99.3% KNO <sub>3</sub> max 0.2% Cl, 0.045% Mg, 0.02% NO <sub>2</sub> , 0.10% SO <sub>4</sub> , 0.10% CO <sub>3</sub> , 0.20% OH	Melting Point = -333 °C Specific Gravity = 2.110
Sodium Nitrate – Industrial Grade – Thermosolar – Crystals	Chemical Formula = NaNO <sub>3</sub> CAS Number = 7631-99-4 Appearance = White Crystals Guaranteed Analysis = min 98.0% NaNO <sub>3</sub> max 0.6% Cl, 0.1% Mg, 0.02% NO <sub>2</sub> , 0.50% SO <sub>4</sub> , 0.10% CO <sub>3</sub> , 0.20% OH	Melting Point = -308 °C Specific Gravity = 2.257
Sodium Nitrate – Technical Grade – Thermosolar – Crystals	Chemical Formula = NaNO <sub>3</sub> CAS Number = 7631-99-4 Appearance = White Crystals Guaranteed Analysis = min 99.2% NaNO <sub>3</sub> max 0.2% Cl, 0.045% Mg, 0.02% NO <sub>2</sub> , 0.10% SO <sub>4</sub> , 0.10% CO <sub>3</sub> , 0.20% OH	Melting Point = -308 °C Specific Gravity = 2.257
Magnesium nitrate hexahydrate	Chemical Formula = MgN <sub>2</sub> O <sub>6</sub> · 6H <sub>2</sub> O CAS Number = 13446-18-9 Appearance = Solid	Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin. Molecular Weight = 256.41 g/mol Melting Point = 89 °C Density = 1.636 g/cm <sup>3</sup> Hazardous Concentrations LD50 = 5,440 mg/kg – oral, rat

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Name	General Description and Composition	Physical Properties and Hazards
Sodium Nitrate	Chemical Formula = NaNO <sub>3</sub> CAS Number = 7631-99-4 Appearance = Solid	Oxidizer. Harmful by ingestion. May be harmful if inhaled or absorbed through skin. May cause irritation to respiratory tract, skin, and eyes. Molecular Weight = 84.99 g/mol pH = 9 at 100 g/L at 20 °C Melting Point = 306 °C Boiling Point = 380 °C Water solubility = 874 g/L at 20 °C Density = 2.261 g/cm <sup>3</sup> Hazardous Concentrations LD50 = 1,267 mg/kg – oral, rat LD50 = 2,680 mg/kg – oral, rabbit LD50 = 175 mg/kg – intravenous, mouse LDLO = 22.5 mg/kg – oral, child
Potassium Nitrate	Chemical Formula = KNO <sub>3</sub> CAS Number = 7757-79-1 Appearance = Solid, White Crystals	Oxidizer. Contact with combustible material may cause fire. Harmful by ingestion. May be harmful if inhaled or absorbed through skin. May cause irritation to respiratory tract, skin, and eyes. Molecular Weight = 101.11 AMU pH = 5.5-8.0 at 50 g/L at 20 °C Melting Point = 400 °C Density = 2.109 g/cm <sup>3</sup> Hazardous Concentrations LD50 = 3,750 mg/kg – oral, rat LD50 = 1,901 mg/kg – oral, rabbit

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AMU = atomic mass units

°C = degrees Celsius

g/mol = grams per mole

g/cm<sup>3</sup> = grams per cubic centimeter

g/L = grams per liter

LD50 = Dose lethal to 50 percent of those tested

LDLo = lowest dose in an animal study at which lethality occurs

mg/kg = milligrams per kilogram

Cl = Total Chloride

Mg = Magnesium

NO<sub>2</sub> = Nitrite

SO<sub>4</sub> = Sulfate

CO<sub>3</sub> = Carbonate

OH = Hydroxyl

