



## Class-A Fire Suppressant & Mid-Term Retardant Powder Concentrate— Product Data and Specifications

Patented and Patents Pending

### PRODUCT DESCRIPTION

Rheology science is the cornerstone to the patented, chemical composition of TetraKO<sup>®</sup> water enhancer. It is a highly efficient, self-wetting powder that transforms the character of ordinary water. Sprayed TetraKO solution is an aqueous gel while in the fire equipment water tank—yet under pressure, it converts gel into a free-flowing liquid—allowing it to be pumped and sprayed as easily as water. At the point where sprayed TetraKO solution hits its targeted surface—structure or foliage/brush—it instantly reverts to a gel that is +99% water. When exposed to fire, this gel traps moisture against the surface. It effectively and quickly extinguishes, and prevents rekindling by smothering flames—facilitating the release of a dense steam that suppresses fire. Oxygen, fuel and heat are starved. While ordinary water and traditional foams slide-down vertical surfaces, water treated with TetraKO does not. It adheres to vertical surfaces—as well as to interior ceilings. This resulting, unique “stick-and-stay” characteristic yields heat calorie absorption that can be 10-times more effective than water or foam. TetraKO is manufactured in the U.S. The metrics used by EarthClean engineers to assess the performance of TetraKO are NFPA Standard 18A and its inherent EPA requirements, and USDA Forest Service Specification 5100-306a. Independent testing of TetraKO solution has affirmed it to be ready biodegradable, non-toxic to aquatic and mammalian life, and has passed uniform corrosion standards for steel, aluminum and brass; all testing was conducted by accredited, U.S. laboratories.

### PRODUCT FEATURES & BENEFITS

- **Fast Prep**—Using the TetraKO PowderBlaster™, quickly mixes into water tank of fire fighting apparatus
- **Shear Thinning**—Under pumped pressure, immediately converts to an exceedingly low viscosity stream
- **Spray Drift Minimized, Spray Distance & Content Optimized**—More suppressant gets on-target
- **Vertical Integrity**—Immediately reverts to highly viscous, stick & stay suppressant on attacked surface—any attitude
- **Smoke Concentration Reduced**—Combustion tetrahedron attacked—oxygen, heat, fuel—and suppressing steam results
- **Exposure Protection**—Enhances holding actions & reduces ignition factors to protect adjacent structures
- **Structure Rekindle Risk Reduced**—Confident extinguishment & faster, more effective overhaul & mop-up
- **Backfire Assist**—Valuable control/wet line asset for defensive & indirect backfire attacks in rural & wildfire incidents
- **Firefighter Safety**—No health-hazard dusting, and TetraKO solution is not slippery like foams or some gels
- **Entrapment Avoidance**—Tactical multiplier for firefighter safety—e.g., caloric absorption reduces back draft/flashover potential
- **Fire Cache Integrity**—This TetraKO product is a powder, which will not freeze or settle in extended storage
- **Ecosystems Safe**—Aquatic and Mammalian Non-Toxic solution per EPA Standards of NFPA 18A (see below)
- **Environmentally Sensitive**—Ready Biodegradable solution per the EPA Standard of NFPA 18A (see below)

### TOXICITY & BIODEGRADABILITY & UNIFORM CORROSION

- **Per Section 5.7 of NFPA 18A**, TetraKO solution independently tested to the required EPA OPPTS Standard 835.3110 and OECD 301. Verified to be **ready biodegradable**.
- **Per Section 5.2.6.1 of NFPA 18A**, TetraKO solution independently tested to required EPA OPPTS Standards 870.1100 (Acute Oral Toxicity), 870.1200 (Acute Dermal Toxicity), 870.2400 (Acute Eye Irritation), and 870.2500 (Acute Dermal Irritation). Verified to comply with the NFPA, UDAFS and EPA guidelines for **mammalian toxicity**.
- **Per Section 5.2.6.3 of NFPA 18A**, TetraKO solution independently tested to the required EPA Series 850, OPPTS Standard 850.1075 and ASTM Standard E729-96. Verified to comply with the NFPA and OPPTS guidelines for **aquatic toxicity**. Noteworthy that tests were conducted at nominal concentrations up to 1000 mg/L with no mortalities or effects in any of the treatment groups (i.e., *Oncorhynchus mykiss*—rainbow trout).
- **Per Section 5.2.7 of NFPA 18A**, TetraKO solution independently prepared (in accordance to ASTM G1) and tested (in accordance to ASTM G 31) for **uniform corrosion** 2024 T3 aluminum, 4130 steel and CDA270 (C27000) yellow brass. All tests were conducted at the extreme temperature (120°F). For each sample, the average of the corrosion results fell within the allowable rates.

### MSDS INFORMATION

1-800-535-5053

## TYPICAL PROPERTIES of TetraKO \*

Appearance	Concentrate: White, Stable Powder Solution: Opalescent Color, Soft Gel Texture
Density	Solution: ≈ 1.0 grams/cubic cm
pH Range	Solution: 5.7 to 6.3
Viscosity	Concentrate: Powder, therefore Not Applicable Solution: Aqueous Gel
Pour Point	Concentrate: Powder, therefore Not Applicable Solution: 32°F (0°C)
Flash Point	None
Surface Tension—Water	66 to 76 dynes/cm
Surface Tension—TetraKO Solution @ .7% Mix	Not Applicable; TetraKO does not <i>encapsulate</i> water; it disperses <i>within</i> water—resulting in a composition having shear-thinning properties
Freezing Point	Concentrate: Powder, therefore Not Applicable Solution: 32°F (0°C)
Percent Solids	Concentrate: 100% Solution: .6%
Diluent Composition	Fresh Water

\*Not for specification use/purpose

## HANDLING, APPLICATION & MIXING

TetraKO powder concentrate, in its sealed containers, will not freeze—and has a shelf life that will exceed multiple years. TetraKO is not compatible with other known suppressants or retardants, or sea/salt water. TetraKO solution has been engineered to be ready biodegradable, and is marketed to aggressively and effectively extinguish fires—so, once TetraKO has been mixed into solution form, it is not meant to be stored or saved. It will and should biodegrade. Apply (spray) as you would apply water—using the existing/standard fire apparatus. No adapters, eductors, or aspirators are needed or recommended for applying TetraKO solution. After a fire incident where TetraKO solution has been used, thoroughly rinse the fire equipment tank with fresh water, and any excess TetraKO solution can safely be drained into waste water systems.

### MIXING REFERENCE

Generally Recommended Mix/Proportioning Ratios...

**STRUCTURAL FIRE → 6% TetraKO Concentrate, 99.4% Fresh Water**

**WILDFIRE → .4% TetraKO Concentrate, 99.6% Fresh Water**

Individual Container PN	Individual Container Weight	Mix Into This Volume of Fresh Water
ECP2021	12.5 Pounds (5.7 kilograms)	250 Gallons (Structural Fire) 375 Gallons (Wildfire)

### MIXING INSTRUCTIONS

- Make use of a TetraKO TurboMixer system (PNs ECP2062, ECP2027 or ECP2065) or TetraKO Wildland Skid system (PNs ECP2080 or ECP2081). Each is equipped with the TetraKO PowderBlaster® that draws the TetraKO powder concentrate from the pail into the system mixing unit. This process takes minutes, and assures thorough mixing. The TurboMixer and Wildland Skid systems and PowderBlaster were designed and have been thoroughly tested by professional fire fighters in extreme-climate Minnesota.
- TetraKO solution will be the consistency of very soft, opalescent pudding.

### PACKAGING

TetraKO concentrate is packaged in recyclable HDPE pails.

  
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