



GROUND APPLIED

LONG-TERM FIRE RETARDANT
GROUND APPLICATION





DESCRIPTION

PHOS-CHEK® Long-Term Retardant is a valuable fire management tool for controlling and suppressing wildland fires. For over 50 years, PHOS-CHEK has been applied from the air by the world's largest fire management agencies. Now Fire Managers are getting great results by applying PHOS-CHEK from the ground. PHOS-CHEK ground applied products have the same superior performance, plus pinpoint, cost effective placement and the ability to apply retardant in all weather conditions, 24 hours a day.

PHOS-CHEK Long-Term Retardant creates a fire break by making wildland fuels non-flammable. It works even when dry, so apply it once and it stays effective even after you've moved on. It can be applied by fire engine, water tender, or with Perimeter Solutions' custom Ground Applied equipment.

APPLICATIONS FOR GROUND APPLIED RETARDANT

- Pre-treatment of high risk fire areas
- Around critical infrastructure assets (communication towers, highway signage)
- Prescribed fire control
- Support for backburn operations
- Around and within communities, homes and businesses
- Protection for urban interface areas, campgrounds, rest areas and railway interface areas
- Protection for historical and national monuments and sensitive and endangered habitats
- Protection for fence posts, power poles, easements and rights-of-ways
- Extending roadway fire breaks

ADVANTAGES OF GROUND APPLIED RETARDANT

- Uniform coverage ensures maximum effectiveness
- Can be applied hours, days, weeks and months in advance
- Application 24 hours per day, 7 days per week including night operations
- Can be applied when airtankers are not available due to weather conditions or areas of low accessibility
- Placement – pinpoint accuracy
- Mitigate business interruption including Public Safety Power Shutoffs (PSPS)





PRODUCTS

- PHOS-CHEK LC95W uncolored LC for areas where retardant does not need to be visible
- PHOS-CHEK LC95A-Fx Fugitive Colored LC when fire fighters need to see where the retardant has been applied. Color will disappear within several days/weeks
- PHOS-CHEK 259-Fx Fugitive colored powder for ground operations in conjunction with portable helicopter operations

APPLICATION METHODS GROUND APPLIED RETARDANT

- Ground engines
- Brush trucks
- Water tenders
- Hyrdo-seeders
- ATVs, UTVs, RTVs, MOHUVs
- Backpack pumps
- Slip-on multi-agent delivery systems
- Custom fabricated ground applied equipment

PREVENTATIVE AND PRETREATMENT USE OF GROUND APPLIED RETARDANT

Long-Term Retardants (LTR) are a valuable fire management tool for controlling and suppressing wildland fires. For over 50 years, LTR has been applied from the air by the world's largest fire management agencies. Now wildland and municipal fire managers are leveraging the benefits of LTR's in preventative or pretreatment applications ranging from motor car raceways, holiday fireworks and other community gatherings to allow those events to continue safely. Commercial businesses and service companies are also recognizing the benefits of preventative and pretreatment programs involving ground applied fire retardant including:

- Airports
- Agriculture
- Communication Operations
- Cultural Property
- General Property Protection
- Highway Transportation Authorities
- Historical / National Heritage Sites
- Military Bases, Government Facilities, Research Laboratories
- Power Generation / Utilities
- Protection of Sensitive or Endangered Habitats
- Railroads
- Rangeland Protection



REQUIRE ASSISTANCE

To learn more about the benefits of Ground Applied long-term fire retardant and specifically preventative and pretreatment applications for wildland, commercial and residential use, please contact your local authorized PHOS-CHEK distributor or factory representative for details. www.phos-chek.com.



RECOMMENDED RETARDANT COVERAGE LEVELS

NFDRS FM	Behavior FM	Coverage Level	Fuel Description
A, L, S	1	1	Annual & perennial Western Grasses, Tundra
C	2	2	Conifer w/Grass2
H, R	8	2	Shortneedle Closed Conifer, Spring Hardwood
E, P, U	9	2	Longneedle Conifer, Fall Hardwood
T	2	3	Sagebrush with Grass
N	3	3	Sawgrass
F	5	3	Intermediate Brush (Green)
K	11	3	Light Slash
G	10	4	Shortneedle Conifer (heavy, dead litter)
O	4	4	Southern Rough
F,Q	6	4	Intermediate Brush (cured; Alaska Black Spruce
B, O	4	> 6	California Mixed Chaparral; High Pocosin
J	12	> 6	Medium and Heavy Slash
I	13	> 6	Medium and Heavy Slash

Adjust Coverage Level based on fire behavior, i.e., for smoldering fires decrease by 1.



PHYSICAL PROPERTIES

Product	Weight of Retardant Concentrate	Weight of Mixed Retardant	Specific Gravity of Mixed Retardant	Viscosity of Mixed Retardant	Refractometer Reading for Mixed Retardant
LC95W	12.3 lb/gal	8.97 lb/gal	1.075-1.085	100-400 cP	11.75-14.0
LC95A-Fx	12.2 lb/gal	9.01 lb/gal	1.075-1.085	100-400 cP	11.50-14.0
259-Fx	Powder Concentrate	8.90 lb/gal	1.063-1.074	100-400 cP	9.75-11.75

YIELD

Product	Package	Mix With	Yields Mixed Retardant
LC95W or LC95A-Fx	5 gal pails	27.5 gal of water	32.5 gal
	55 gal drum	302.5 gal of water	357.5 gal
	260 gal totes	1430 gal of water	1690 gal
	Bulk Tanker	5.5 gal/gal conc	6.5 gal/gal conc
295-Fx	50 lb pail	49.5 gal of water	52.5 gal
	2000 lb PHOS-BIN®	1980 gal of water	2105 gal





HANDLING PRECAUTIONS

- FOR DETAILED SAFETY INFORMATION, please refer to the SDS.
- Minimally irritating to the eyes, non-irritating to skin.
- **Eye Protection:** As a good industrial practice, the use of chemical goggles is recommended.
- **Precautionary Measures:** Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary contact and removal of the material from the eyes, skin and clothing.
- **If in eyes:** Flush with plenty of water.
- **Skin Protection:** As a good industrial practice, wear protective gloves to minimize skin contact. Wash hands and exposed skin after handling.
- **Respiratory Protection:** Avoid breathing dust. Respiratory protection should be worn when airborne exposure is excessive. See SDS for further guidance.
- For complete SDS, visit www.phos-chek.com



RELATIVE EFFECTIVENESS OF COMMON FIRE CHEMICALS

APPLICATION	Long-Term Retardant	Gel	Class A Foam	Water
Indirect Attack	✓✓✓✓	✓✓	✓	
Direct/Parallel Attack	✓✓✓✓	✓✓✓	✓✓	✓
Interior Structure Attack		✓✓	✓✓✓✓	✓
Structure Protection-Indirect Application	✓✓✓✓	✓✓✓	✓✓	✓
Structure Protection-Direct Application		✓✓✓✓	✓✓✓	✓
Mop Up	✓✓	✓✓	✓✓✓✓	✓
Prescribed Burn Control	✓✓✓✓	✓✓✓	✓✓	✓
Burnout Operations	✓✓✓✓	✓✓✓	✓✓	✓

✓✓✓✓ = Superior Effectiveness
✓✓✓ = Excellent Effectiveness

✓✓ = Good Effectiveness
✓ = Baseline Effectiveness



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