GEO SPECIALTY CHEMICALS

Lomar® D Powder

Polynaphthalene Sulfonate, Sodium Salt
Concrete Superplasticizer Powder

Lomar® D Powder Product Bulletin

Lomar® D Powder is a high-range water reducing concrete admixture that is far more powerful than ordinary reducing aids. This superplasticizer greatly reduces the amount of water normally required to impart workability to a concrete mix.

340 Mathers Road
Ambler, PA 19002-3420
USA
Tel: +1 215 773 9280
Toll Free 888 519 3883
Fax:+1 215 773 9424

Please send email enquiries to:
scsales@geosc.com

Website: www.geosc.com

Benefits

Lomar® D Powder imparts the following benefits to concrete producers:

- Permits lowering of water-cement ratio while maintaining strength.
- Quicker and easier mix placement.
- Increased early and ultimate compressive strength from water reduction.
- Allows quicker mold turnover time for pre-casters.
- Minimizes energy required for curing.
- Improves finish of cast concrete by minimizing honeycombed surface.

Technical Data	Typical Properties
Appearance	Tan, free-flowing powder
Moisture, %	7 Max.
Bulk Density, lb/ft^3	38-42
Active Content, %	84
Na_2SO_4 Content, %	12
pH, 2%	9 - 10

How It Saves

By Cutting Cement: **Lomar® D Powder** can cut costs by reducing the amount needed to reach a specified strength.

For example, a 20% water reduction on a concrete mix based on seven sacks of cement would reduce the original water-cement ratio of 0.44 to 0.36. This would consequently increase the compressive strength an average of 40% at 24 hours.

But instead of opting for this added strength, the contractor can lower the cement content by 15% as well. This will re-establish the water-cement ratio and maintain original compressive strength. This will also result in a 15% savings in cement due to the addition of **Lomar® D Powder**.

By Cutting Fuel: Trials show it is possible for a pre-caster to reduce the curing time by 50% and still achieve desired compressive strength before demolding.

By Cutting Time: **Lomar® D Powder** can dramatically increase the concrete fluidity or slump for better, fast placement with no loss in strength and durability. This faster placement results in fewer man-hours on a given job.

High early strength can be achieved with Type 1 cement where a contractor had normally used Type 111.

How It Works

Lomar® D Powder is a dispersing agent that promotes the separation or deflocculation of the cement particles by overcoming the cohesive forces that attract them. This effect is evident on other types of pozzolanic material such as fly ash, or blast furnace slag.

The strong dispersing action of **Lomar® D Powder** causes the concrete to flow much easier than a conventional mix. This effect is called plasticizing.

As a superplasticizer, **Lomar® D Powder** gives the concrete mix optimum plasticity and allows it to be placed better at the working site. In addition, its use allows a lowering of the water cement ratio without loss of slump. This results directly in an increase in early and ultimate compressive strength of the concrete.

Lomar® D Powder is non-foaming and non-toxic. Because it is synthetic, it always exhibits uniform properties. Its temperature stability is over 150°C (300°F). When used at normal suitable dosage levels, **Lomar® D Powder** will not significantly affect the concrete's heat of hydration. Nor does it contribute to reinforcement corrosion or mold growth.

Lomar® D Powder is a high-molecular weight, condensed naphthalene sulfonate. It is also available as a 33% solids aqueous solution.

Precast/Prestressed: Prestressed concrete producers use **Lomar® D Powder** to formulate very high early and ultimate strength mix designs for earlier de-stressing of pre-stressed members and rapid mold stripping.

Both pre-cast and pre-stressed producers use **Lomar® D Powder** to formulate water-reduced concretes with 25% less water, producing no loss in slump and up to 40% increase in compressive strength in 24 hours.

Plasticity: **Lomar® D Powder** imparts to a concrete mix and produces a very even flow during form filling. When the forms are stripped away, the concrete appears smoother than a standard mix with fewer cavities that create a honeycombed finish.

Ready-Mix: In ready-mix applications, **Lomar® D Powder** improves flow, while the concrete remains cohesive and retains its water/cement ratio without bleeding, segregation, or strength reduction.

Lomar® D Powder can convert 3 inch slump concrete into 8 inch slump high-flow concrete with no loss of strength and minimizes the work required for placement in closely spaced areas, large bay areas, floor slabs, roof decks, and similar structures.

ASTM Certification

Lomar® D Powder was evaluated by the Portland Cement Association and certified as meeting the requirements for a Type F water-reducing concrete admixture, in accordance with ASTM C-494.

Characteristics		ASTM C-494 Requirement Type A Admixture	ASTM C-494 Requirement Type F, High Range Admixture	Test Results with Lomar D
Concentration of Lomar D				0.36%
Water Reduction		5% Minimum	12% Minimum	17%
Compressive Strength	1D		140% Minimum	
	3D	110% Minimum	125% Minimum	144%
	7D	110% Minimum	115% Minimum	126%
	28D	110% Minimum	110% Minimum	115%
	6mc	100% Minimum	100% Minimum	115%
	1 yr	100% Minimum	100% Minimum	120%
Flexoral Strength				
	3[	100% Minimum	110% Minimum	126%
	7[	100% Minimum	100% Minimum	114%
	28[	100% Minimum	100% Minimum	111%
Time of Setting				
	Initial	Not more than 1 hour earlier or 1 1/2 hr later	Not more than 1 hour earlier or 1 1/2 hr later	9 min. later
	Final	Not more than 1 hour earlier or 1 1/2 hr later	Not more than 1 hour earlier or 1 1/2 hr later	15 min. later
Length Change		Max increase over control 0.010	Max increase over control 0.010	0.001
Relative Durability Factor		Min % of control-80.0	Min % of control-80.0	99%

Freeze-Thaw Stability

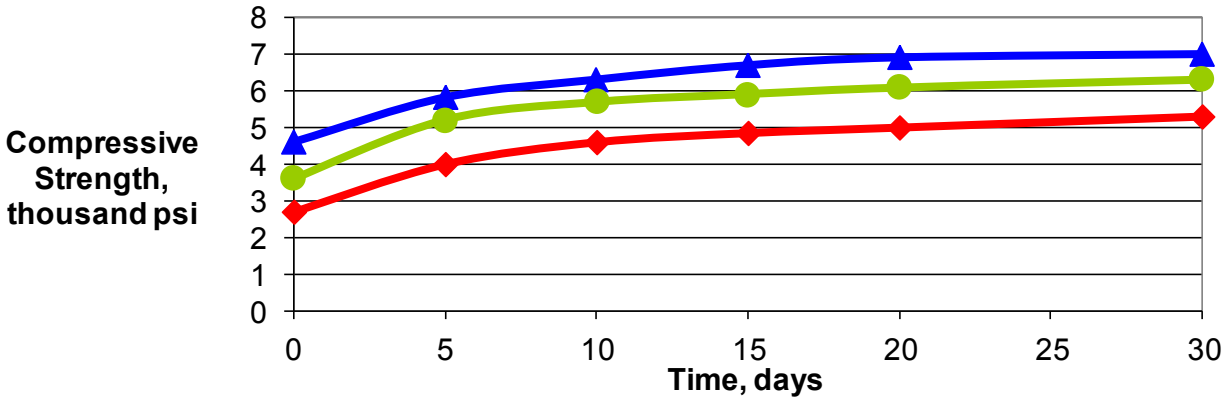
The Portland Cement Association also determined, in accordance with ASTM C-666 Procedure A, that after 300 cycles of freezing and thawing, **Lomar® D Powder** specimens showed low expansions, no weight loss, and an excellent durability factor.

Results are described by the following data:

	Expansion	Weight Change	Durability Factor
Control	0.006	-0.4	99%
Lomar® D	0.006	+ 0.1	98%

Water Reduction & Compressive Strength

Lomar® D Powder



The chart above shows **Lomar® D Powder** at levels of 0.36% and 0.66% produced 18% and 25% water reduction respectively in Type 1 Cement and achieved higher compressive strength values than the control.

How To Use

The dosage of **Lomar® D Powder** is based on the cement content of the concrete mix. In most cases, a 25% water reduction can be obtained with 0.5% **Lomar® D Powder** (active basis).

To obtain the maximum advantage, the concrete mix should be redesigned and tested by normal trial batch procedures. A low slump can be corrected by increasing levels of **Lomar® D Powder** content rather than by adding more water.

For best results, **Lomar® D Powder** should be added to the concrete two minutes prior to pouring. Mixing periods of 1 to 2 minutes will be sufficient for efficient mixers, 5 to 7 minutes for the average truck mixing.

Packaging, Storage & Handling

Lomar® D Powder is shipped in 50 lb (22 kg) paper bags, 55 lb (25 kg) paper bags, or 2000 lb (907 kg) supersacks.

Store in a dry place.

Additional handling information is contained in a Material Safety Data Sheet, which is available upon request.