

# SILICA FUME DENSIFIED

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## PRODUCT

- Densified Silica Fume (DSF) is a ready-to-use dry densified silica fume used to produce very durable, high strength concrete with very low permeability and low rebound shotcrete. DSF chemically reacts with calcium hydroxide in cement paste acting as a superpozzolan. This reaction yields a calcium silicate hydrate gel enhancing strength and durability by consuming the weak calcium hydroxide crystals. The ultra-fine amorphous silica particles also help fill the voids between cement particles further contributing to the formation of an extremely dense, less permeable concrete.
- For additional information on DSF, or its use in developing a concrete mix with specific performance characteristics, contact your local TARGET representative.

## USES

DSF is recommended for use whenever high performance concrete or shotcrete is required. Higher strengths make new structural designs possible by reducing column sizes, production, transportation, and erection costs. The lower chloride permeability makes microsilica concrete produced with DSF highly suitable for parking structures, bridge decks, marine structures, or wherever distress due to corrosion of embedded steel can result. Higher durability by producing a dense, less permeable concrete makes DSF an excellent solution to the problem of deterioration of industrial floors in aggressive environments. In shotcrete DSF reduces rebound and increases overhead buildup.

## ADVANTAGES

The addition of DSF demonstrates the ability to achieve:

• Increased strength	- high early and later age compressive flexural strength
• Easier handling	- densification allows for easier auguring and silo storage
• Very low permeability	- very low chloride permeability - 5 to 20 times increased electrical resistivity - greatly reduced water permeability
• Higher durability	- increased chemical resistance - improved freeze-thaw resistance - increased abrasion resistance - increased resistance to alkali aggregate reaction
• Shotcrete	- lower rebound - higher buildup

**NOTICE:** Obtain the applicable **LIMITED WARRANTY** at [www.targetproducts.com/product-warranty](http://www.targetproducts.com/product-warranty)  
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## TYPICAL PROPERTIES FOR TARGET DENSIFIED SILICA FUME

- DSF is a classified densified silica fume
- Appearance: dark grey powder
- Specific gravity: 2.2
- Densified bulk density: approximately 620 kg/m<sup>3</sup> (39 lb/ft<sup>3</sup>)
- Amorphous SiO<sub>2</sub>: 88-90
- SO<sub>3</sub> < 1%

## TARGET DENSIFIED FUME AVERAGE MILL ANALYSIS 2016

Silica Fume Chemical Components	Average Results
SiO <sub>2</sub> (%)	89.64
Fe <sub>2</sub> O <sub>3</sub> (%)	0.23
Al <sub>2</sub> O <sub>3</sub> (%)	0.86
MgO (%)	0.87
K <sub>2</sub> O (%)	0.76
Na <sub>2</sub> O (%)	1.11
LOI (%)	3.25
SO <sub>3</sub> (%)	0.13
Moisture (%)	0.70
Surface Area (m <sup>2</sup> /g)	22.36
Bulk Density (kg/m <sup>3</sup> )	620.00
Remains on 45µm Sieve (%)	1.01

### PACKAGING

DSF is supplied in 10 kg (22 lb) bags and 500 kg (1,100 lb) bulk bags.

### CAUTION

The color of concrete or shotcrete containing DSF is darker than standard concrete. When color match is a consideration a test mix should be made.

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