

FONDU Expanding Grout - A Cold Temperature Grout

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PRODUCT

TARGET® Fondu Expanding Cold Temp Grout consists of accurately weighed high alumina cement, fine aggregate and shrinkage compensating admixtures. The product is designed to be used as dry pack, plastic or flowable grout. In normal temperature ranges of 3 °C to 24 °C (37 °F to 75 °F), the grout will have a slight expansion prior to final set. The grout contains no chlorides or accelerators and is proportioned to provide a maximum water/cement ratio of 0.4 when added water does not exceed the maximum specified. TARGET® Fondu Expanding Cold Temp Grout can be placed with ambient temperatures as low as -10 °C (14 °F) following **Low Temperature Grouting pre-conditioned procedures.**

COLOR

Dark grey/brown

SHELF LIFE

6 months in original, unopened packaging.

Store dry at 3 °C to 24 °C (37 °F to 75 °F) and keep protected from moisture.

USES

TARGET Fondu Expanding Cold Temp Grout is designed for use in applications such as:

- Permanently anchoring highway furniture such as posts, signs, parking meters.
- Permanently fixing anchor bolts, columns, railings and other fixtures in concrete, rock or masonry.
- Low temperature grouting. When ambient temperatures prohibit the use of normal cementitious grout. Following Low Temperature Grouting procedures or Contact Target Products Ltd for details with ambient temperatures ranging between 3 °C to -10 °C (37 °F to 14 °F).

PROCEDURES

1. Add the grout to clean water with continuous mixing to achieve the required consistency. Approximate water requirements are:

DRY PACK

2.7 liters (6.0 lb) per 25 kg (55 lb) bag

PLASTIC

3.8 liters (8.4 lb) per 25 kg (55 lb) bag

FLUID

4.9 liters (10.8 lb) per 25 kg (55 lb) bag

IMPORTANT: Do not exceed 4.9 liters (10.8 lb) of water per 25 kg (55 lb) bag of grout. Water temperature should be 10 °C to 16 °C (50 °F to 60 °F)

NOTICE: Obtain the applicable **LIMITED WARRANTY** at www.targetproducts.com/product-warranty
Or send a written request to Target Products Ltd., Five Concourse Parkway, Atlanta, GA 30328, USA.
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2. For plastic or flowable consistencies the grout is best mixed in a high speed shear mixer, but a Jiffler mixer may be used. Use of rotating drum mixers is not recommended.
3. Place, using methods established for normal grouting procedures depending on application and consistency required.
4. Pot life of grout is approximately 1 hour at 20 °C (68 °F).
5. Continuous moist curing for 3 days is necessary for most grouting procedures

Low Temperature Grouting Procedures

- Follow procedures 1-5 above, except for ambient temperature between 3 °C to -10 °C (37 °F to 14 °F), mixing water should be pre-conditioned to 50 °C (122 °F) before mixing with dry grout. Store the grout in a heated environment prior to use.
- The compressive strength at 24 hours will be approximately 22 Mpa (3190 psi) (in a simulated pile grout test cell on 6"×12" cylinders)

TYPICAL PROPERTIES OF FONDU EXPANDING COLD TEMP GROUT at 20°C (68°F)

CONSISTENCY	FLUID	PLASTIC	DRY PACK
FLOW	20-30 seconds by flow cone	80% - 100% by flow table	Forms a ball
VOLUME CHANGE % expansion after setting at 3 and 14 days at 28 days	Up to 0.3 Not less than at 3 and 14 days		
SEGREGATION	None	None	None
DENSITY , kg/m ³ (lb/ft ³)	2,240 (140)	2,320 (145)	2,350 (147)
COMPRESSIVE STRENGTH MPa (lb/in ³) at 1 day at 28 days	42 (6,200) 56 (8,200)	55 (8,000) 75 (10,900)	70 (10,100) 80 (11,600)
APPROXIMATE YIELD bags/m ³ bags/yd ³ liters/bag ft ³ /bag	77 59 13 0.46	79 61 12.6 0.45	81 63 12.4 0.43

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NOTE: TARGET Fondu Expanding Cold Temp Grout is laboratory tested in accordance with Corps of Engineers Specification for Non-Shrink Grouts, CRD-C621 and ASTM Standard Specification C1107 for Packaged Dry, Hydraulic-Cement Grout (Non-shrink). Mixing water at 16 °C (60 °F), and laboratory temperature at 21 °C (70 °F). Strength samples 50.8 mm (2 inches) cubes, confined.

CAUTION

- Under warm, moist conditions, cured high alumina cement products can undergo chemical conversion and reduction of strength properties. TARGET Fondu Expanding Cold Temp Grout is, therefore, NOT recommended for use in applications where the grout is subjected to high humidity and temperatures over 25 °C (77 °F).
- TARGET Fondu Expanding Cold Temp Grout is NOT recommended for pours with least dimensions (thickness) over 75 mm (3 inches).

SPECIFICATION GUIDE

Grout shall be TARGET Fondu Expanding Cold Temp Grout or approved equivalent non-metallic grout based on high alumina cement and meeting the requirements of US Corps of Engineers Specification CRD-C621 or ASTM C1107 for Non-Shrink Grout.

LABORATORY TESTING OF TARGET FONDU EXPANDING COLD TEMP GROUT - AT LOW TEMPERATURES

In a laboratory test program conducted by Hardy Associates (1978) Ltd, the following results were obtained.

TEMPERATURE OF MIXING, SETTING, CURING	-3 °C 27 °F	+3 °C 37 °F	+19 °C 66 °F
SETTING TIME ASTM C807 Initial Set, hr:min Final Set, hr:min	6:00 6:40	5:30 6:45	4:07 4:43
EXPANSION, CRD-C621 at 24 hours, % vol. at 4 days, % vol.	0.44 0.44	0.33 0.33	0.37 0.37
COMPRESSIVE STRENGTH CRD-C277, MPa (lb/in ²) at 24 hours at 7 days at 28 days	1.4 (200) 37.9 (5,500) 51.7 (7,500)	44.8 (6,500) 50.8 (7,370) 63.4 (9,200)	68.4 (9,920) 73.1 (10,600) 75.5 (10,950)
CONSISTENCY	Fluid	Fluid	Fluid

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NOTE:

- Water: grout ratio at all three temperatures was held constant at that required for flow of 23 seconds by flow cone (CRD-C621) at 19 °C (66 °F). No loss of flow at low temperatures was observed.
- At -3 °C (27 °F) ice crystals formed on outer surfaces of samples, causing slight surface damage. No ice damage was visible in the interior of compressive strength samples after testing.
- Temperatures of compressive strength samples were adjusted to 18 °C to 20 °C (64 °F to 68 °F) before testing.

Contact Target Products Ltd for additional information on low temperature grouting procedures.

PACKAGING

TARGET Fondu Expanding Grout is available in 25 kg (55 lb) bag 56 bags per pallet.

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