BUILDING TRUST

PRODUCT DATA SHEET

Sikacrete®-416 Light

Flowable, cohesive and impermeable high performance cementitious expanding material

DESCRIPTION

Sikacrete®-416 Light is a specially designed lightweight expansive cementing material with a density of 1650 kg/m³ (13.8 lb/gal) and a relatively low strength which is ideal for secured plugging of wells.
Sikacrete®-416 Light is supplied as a ready to use cement-based dry powder system. On mixing with a controlled amount of fresh water, it produces a highly flowable, cohesive and impermeable high performance cementitious expanding material.
Sikacrete®-416 Light is designed based on nanotechnology system. It features a uniquely formulated non-gaseous expansion and a non-thixotropic rheological behaviour that differs from standard oil well cement, to allow effective filling of cavities and recessions within the borehole formation. Additionally, the product exhibits a self-sealing behaviour to prevent uncontrolled loss of material into the formation. The superb backfill behaviour together with expansion ensures a crack-free and-shrinkage-free grout volume. This ensures full surface-to-surface contact and helps to create a strong bond with the contact surface.
Sikacrete®-416 Light has been tested and documented at Nautec Oil Well Cementing Laboratory.

USES

Sikacrete®-416 Light is a special cementitious material that shall only be applied by trained, qualified and professional personnel.
- Ideal for secured plugging of wells
- Recommended for use within well temperature and pressure between 5 °C to 60 °C. and up to 1500 psi (105 Bars) for optimum performance.

CHARACTERISTICS / ADVANTAGES

- Non-gaseous expansion system
- Excellent flowability
- Non-thixotropic rheology
- Low mechanical strength

PRODUCT INFORMATION

Packaging	1000 kg FIBC bag	
Shelf Life	12 months from date of production	
Storage Conditions	Store in a sheltered and dry place in its original packaging away from direct sunlight and heat below 40 °C.	
Density	1600–1650 kg/m³	(EN 12390-7)
Maximum Grain Size	< 500 µm	
Solid Content	Free fluid 0 %	(API Spec 10A)

TECHNICAL INFORMATION

Specific Advice

Rheological Properties (27 °C & atm. pressure) (API RP 10B-2)

RPM	Reading
300	90–110° deflection
200	60–80° deflection
100	30–40° deflection
60	20–30° deflection
30	10–14° deflection
6	4–6° deflection
3	1–4° deflection

Compressive Strength (ASTM C942 / ASTM C109)

1 day	0 MPa
3 days	> 7 MPa
7 days	> 12 MPa
14 days	> 20 MPa
28 days	> 25 MPa

Expansion	Linear expansion (atmospheric curing)	< 1.0 %	(API RP 10B-5)
Permeability to Liquid Water	Fluid loss 50 ml / 30 min		(API RP 10B-2)

APPLICATION INFORMATION

Open Time	~5 hours (50 °C / 1500 psi)		(API RP 10B-2)
Flowability	Flow table	370–440 mm	(ASTM C1437)
	Flow tunnel	8–12 seconds	(ASTM C939)
Fresh Mortar Density			

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

IMPORTANT CONSIDERATIONS

Sikacrete®-416 Light contains cement and the usual preventive protections should therefore be used. It is recommended that protective gloves and a dust mask be worn when handling the product. Avoid contact with eyes and prolonged skin contact with fresh grout. In case of contact with eyes, immediately flush with water and call medical help. In case of contact with skin, wash with water.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

MIXING

Sikacrete®-416 Light is easily mixed using a normal grout mixer at various speeds. Powder is added into the mixer followed by fresh water and mixed for approximately 4–6 minutes until uniformity is achieved, depending on the effectiveness of the mixer. The amount of water added is dependent on ambient temperature and varies from 60–64 % of powder mass. In general, water demand is increased with higher temperature.
Sikacrete®-416 Light is recommended for use within well temperature and pressure between 5–60 °C (40–120 °F) and up to 1500 psi (105 Bars) for optimum performance. For elevated temperature and pressure applications, please consult Sika for technical support.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no war-

ranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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