

DENKA CSA #20

Shrinkage Reducing and Compensating Additive

Description

DENKA CSA#20 is made by Calcium Sulfo Aluminate which mainly consists of lime stone, gypsum and bauxite in an adequate distribution. DENKA CSA#20 reduces dry shrinkage crack as well as water tightness in cementitious hydrates.

Advantages

- Minimize the cracking caused by drying shrinkage (Shrinkage compensation)
- Chemical Pre-stress
- Increase water tightness

Applications

- Dry mix mortar to minimize cracking due to dry shrinkage
- Pre-cast concrete member to improve bending toughness by chemical pre-stress with reinforced rebar
- Ready-mixed concrete to minimize cracking due to dry shrinkage and improve water tightness

Packaging

- 25kg paper bags
- 1,000kg bulk bags

Properties

Chemical Composition

Ignition-loss (%)	3 or less
Insolubility (%)	1.1
SiO ₂ (%)	1.5
Al ₂ O ₃ (%)	9.0
Fe ₂ O ₃ (%)	0.6
MgO (%)	1.4
SO ₃ (%)	29
CaO (%)	51.8
f-CaO (%)	19.8
Alkali content (%)	0.75 or less
Chloride ion (%)	0.05 or less

Physical Properties

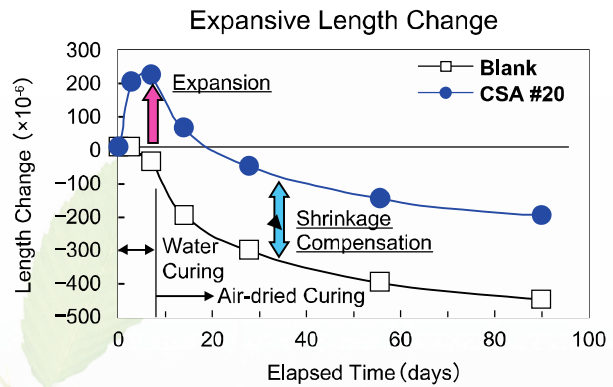
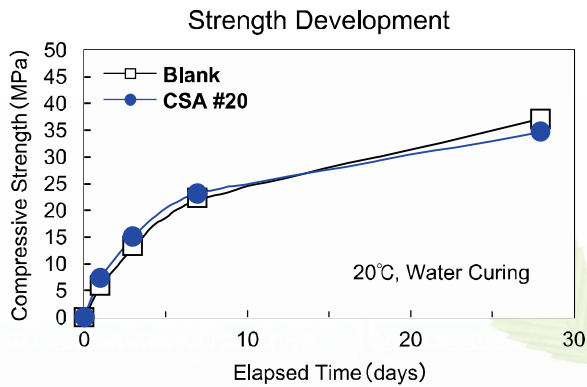
Appearance	White powder
Physical state	Solid
Odour	Odorless
Specific gravity*	3.10
Blaine fineness*	2000 or more g/cm ²
Bulk density	1.12
pH	12 (Dissolved water)
Water solubility	Partially soluble in water. Will solidify over a period of hours if moistened or wet

※Typical Data

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

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Concrete Mix Proportion

Ordinary Portland Cement	: 295kg/m ³
CSA #20	: 25kg/m ³
W/(cement+ CSA #20)	: 50.0%
Sand-Aggregate ratio	: 44.6%

Precautions for handling

- Refer to Material Safety Data Sheet (MSDS) before use.
- Use a stainless steel or iron agitating blade. Do not use an aluminum blade because hydrogen gas generation could occur and subsequently lead to explosions when mixing the mortar
- Mix grouting material with the specified quantity of water. Using other quantities of water may affect the performance of the non-shrinking mortar
- Use fresh water that does not contain oils, salts, or organic compounds
- Before beginning injecting work, optimize the quantity water in mixing trials and remove oily residues, laitance, and mud from the surface of structure
- Protective gear (goggles, mask, gloves, and rubber boots) should be worn during handling
- Do not dispose of CSA#20 in drains
- Product in open bags should be used up completely or the bag should be resealed for storage
- The product should be stored in a dry area, indoors, and out of direct sunlight
- For further information, please contact DENKA.

Limitation of liability

- The information contained in this document is general advice for potential customers of DENKA about the basic properties and characteristics of various DENKA products (hereafter referred to as "the Product Information"). DENKA makes no warranty or representation as to the entire accuracy or completeness of the Product Information in this brochure.
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- DENKA reserves the right to change the Product Information from time to time at its discretion and without notice.

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<http://www.denka.co.jp/eng/>

DENKI KAGAKU KOGYO K.K.
 Special Cement Additives Department
 TEL: +81-3-3507-5465 FAX: +81-3-3507-5085

-China-
DENKA INFRASTRUCTURE TECHNOLOGIES SHANGHAI
 ROOM 2807, NEW HONGQIAO CENTER BLDG
 NO.83 LOUSHANGUAN RD, CHANG NING AREA, SHANGHAI CHINA
 TEL: +86-21-6236-5510
 FAX: +86-21-6236-5505

-Asia-
DENKA INFRASTRUCTURE TECHNOLOGIES PTE LTD
 4 SHENTON WAY #29-02 SGX CENTRE 2 SINGAPORE 068807
 TEL: +65-6216-0580
 FAX: +65-6224-3840

-Europe-
DENKA CHEMICALS GMBH
 WEHRHAHN-CENTER, CANTADOR STR.3, DUSSELDORF, GERMANY
 TEL: +49-211-130990
 FAX: +49-211-329942