

# DENKA CSA #20

## Shrinkage-Reducing and Compensating Additive

### Description

**DENKA CSA #20** is a shrinkage-reducing high-performance additive made with calcium sulfoaluminate consisting mainly of limestone, gypsum and bauxite mixed proportionally.

### Features

- Shrinkage compensation, thereby preventing cracking caused by drying shrinkage
- Increases water-tightness

### Applications

- Dry-mix mortar
- Precast concrete products (bending toughness improved by chemical pre-stress with reinforced rebar)
- Ready-mix concrete

### Packaging

- 25kg paper bags
- 1000kg bulk bags

### Shelf Life

- 12 months from production date
- Determine the production date by reference to the lot number. A lot number of "1AXXX" corresponds to production in Jan 2001; "2BXXX" to Feb 2002 and so on.

### Technical Data (Typical Values)

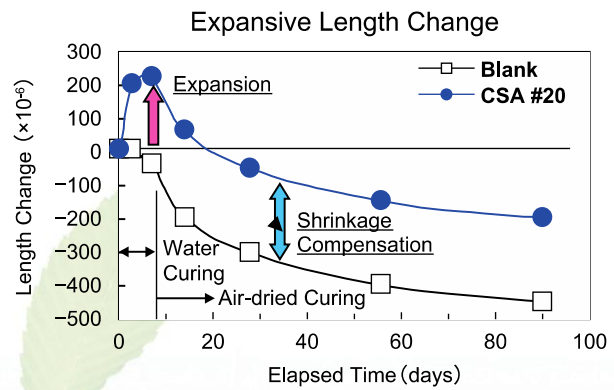
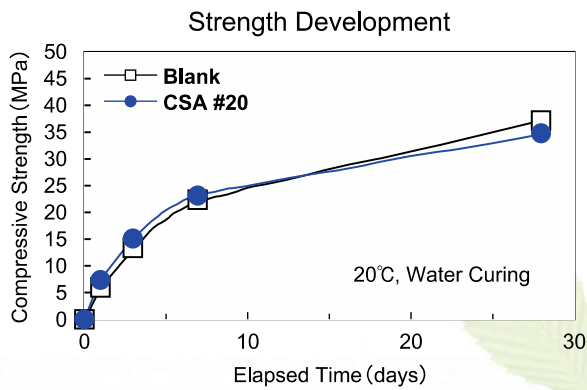
#### Chemical Composition

Ignition-loss (%)	3 or less
Insolubility (%)	1.1
SiO <sub>2</sub> (%)	1.5
Al <sub>2</sub> O <sub>3</sub> (%)	9.0
Fe <sub>2</sub> O <sub>3</sub> (%)	0.6
MgO (%)	1.4
SO <sub>3</sub> (%)	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 <sup>2</sup>
Bulk density	1.12
pH	12 (Dissolved water)
Water solubility	Partially soluble in water. Will solidify in hours if moistened or wet.

The above may vary depending on equipment, temperature, mixing methods, application methods, test methods, actual site conditions and curing conditions.



#### Concrete Mix Proportion

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

## Handling Precautions

- Refer to the Safety Data Sheet (SDS) before use.
- Use a stainless steel or iron agitating blade. Do not use an aluminum blade because hydrogen gas evolution can occur while mixing the mortar; resulting in explosions.
- Mix grout with the specified quantity of water. Using quantities outside the specified range may affect the performance of the non-shrink mortar.
- Use fresh water not containing oils, salts, or organic compounds.
- Before beginning injection work, optimize water quantity in mixing trials and remove oily residues, laitance, and mud from the surface of structures.
- Wear protective gear (goggles, mask, gloves, and rubber boots) while handling the product. Do not dispose of the product in drains.
- Once opened, the product should be used up completely. Otherwise, reseal 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 brochure provides 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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- Each user of the Product Information and DENKA products assumes their own responsibility to properly determine the manner and suitability of use of the Product Information and DENKA products in its own operations. The user should exercise proper care in considering the Material Safety Data Sheet, Product Information and any other technical information provided by DENKA, including descriptions of the conditions of use, warnings, and other cautionary instructions.

DENKA reserves the right to change the Product Information from time to time at its discretion and without notice.

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