

DENKA POWER CSA TYPE-R

Shrinkage-Reducing and Compensating Additive

Description

DENKA POWER CSA TYPE-R is a shrinkage-reducing, high-performance expansive additive used in concrete and mortar.

Features

- High expansion CSA-type (50~30% dosage reduction at equivalent expansion rate compared to CSA #20)
- Dramatically improves shrinkage compensation (reduces cracking caused by drying shrinkage)
- 3~8% dosage rate by cement weight; depending on mix proportion and cement affinity

Applications

- Raw material for premixed (formulated) dry mortar
- Applicable for most mass concrete structures, such as parking decks, bridge decks, water tanks and underground structures etc.

Packaging

- 20kg paper bags
- 1000kg bulk bags

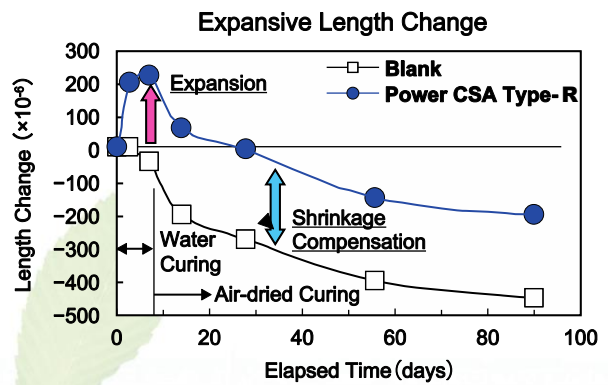
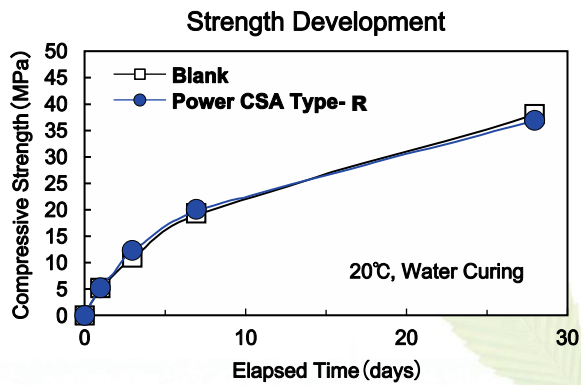
Shelf Life

- 6 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.

Chemical Composition (Typical Values)

| SiO ₂ (%) | Fe ₂ O ₃ (%) | Al ₂ O ₃ (%) | CaO (%) | SO ₃ (%) | Total (%) | f-CaO (%) |
|-------------------------|---------------------------------------|---------------------------------------|------------|------------------------|--------------|--------------|
| 1.0 | 0.8 | 7.2 | 70.6 | 18.5 | 98.1 | 49.8 |

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 | : 320kg/m ³ |
| Power CSA Type-R | : 20kg/m ³ |
| W/(cement+ P-CSA) | : 55.0% |
| Sand-Aggregate ratio | : 45.5% |

Physical Properties

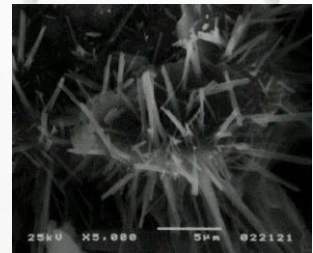
Expansion & Shrinkage

Expansion after 7 days: $\geq 0.020^*$

*Test method is in accordance with JIS A6202 modified with ordinary Portland cement in water

Effect on Strength

Negligible effect on strength when dosage rate is <8% by weight. (Trial tests are recommended as actual onsite conditions may differ.)



Handling Instructions/Precautions

Mixing Design

◇ Treat POWER CSA TYPE-R as a binder during mix calculations.

◇ Excessive dosage will cause over-expansion, leading to reduced strength and durability. Mix POWER CSA TYPE-R together with cement in the mixer. Uneven mixing may cause partial expansion.

Curing

◇ Improper ettringite formation may occur when the surroundings are dry.

◇ The longer the curing period, the smaller the dry shrinkage.

Affinity with admixtures and additives

◇ If admixtures and other additives are used, perform trial mixes to confirm the physical properties of the resultant mix.

• Refer to the Safety Data Sheet (SDS) before use.

• 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

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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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