

DENKA FAST DEMOULDER-N

Fast Demoulding Additives for Concrete Production

Description

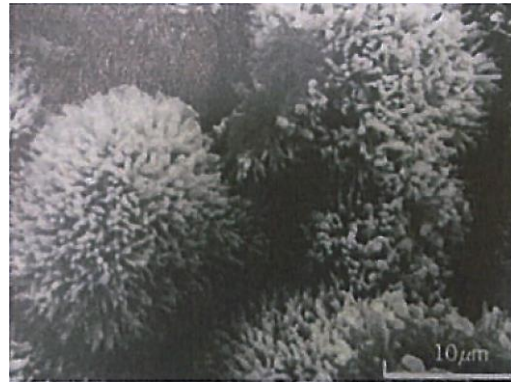
DENKA FAST DEMOULDER-N is a fast demolding additive used in concrete production possessing also expansive properties for crack reduction.

By means of ettringite production and acceleration of Portland cement hydration reactions, strength development is achieved.

Ettringite forms within the spaces of concrete; reducing the voids and creating a more densified structure.



Ettringite



CaO-SiO₂-H₂O

Features

- Increases precast production productivity and efficiency
- Allows for shorter production cycles; reducing labor and steam curing costs
- Reduces concrete shrinkage through expansive performance

Applications

- Fast demolding of precast products (segments, box culverts)
- Ecological concrete containing granulated blast furnace slag, fly ash



Box culvert



Granulated blast furnace slag

Packaging

- 20kg bags
- 1,000kg jumbo bags

Physical Properties

- Main component: Calcium sulfoaluminate
- Density: 2.89 g/cm³
- Appearance: Gray powder

Standard Mix Proportions, Strength Development Data (Typical Values)

- Standard dosage of 20~30kg/m³ of concrete
- Use in replacement of cement or aggregates

Example 1

W/C ¹	S/A ²	Unit quantity (kg/m ³)					SP ⁴ (Cement×%)
		Water	Cement ³	FAST DEMOULDER-N	Sand	Gravel	
0.35	34	140	400	0	635	1242	1.2
0.35	34	140	380	20	635	1242	1.4

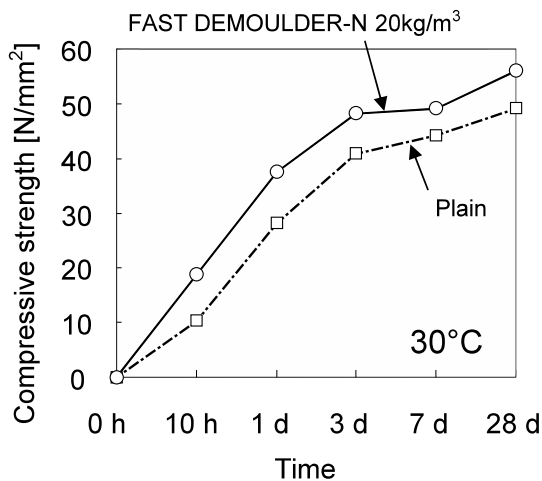
¹Water to cement ratio

²Sand to aggregate (sand and gravel) ratio

³Ordinary Portland cement

⁴Naphthalene system-based super plasticizer.

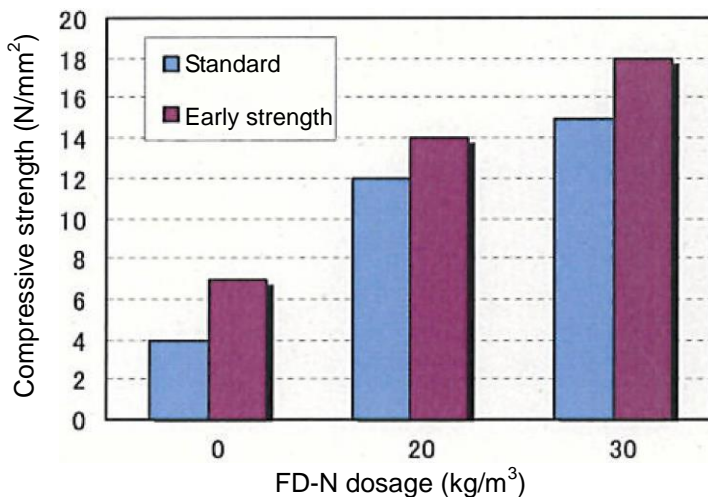
Concrete should be mixed and cured at temperatures below 30°C.



Age	Compressive strength (MPa)	
	Plain	FAST DEMOULDER-N
10h	10.3	18.8
1d	28.0	37.5
3d	40.8	48.1
7d	44.1	49.0
28d	49.0	55.9

Example 2

➤ Initial strength



■ Concrete mix (arbitrary)

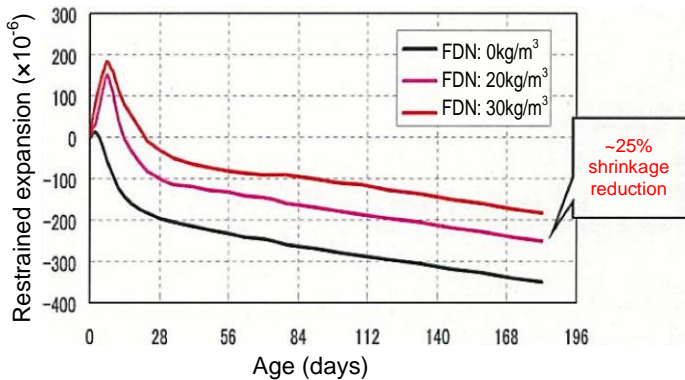
- Cement type: ①Standard ②Early strength

Cement amount (kg/m ³)	Water:binder ratio (%)	Fine agg. (%)	Slump (cm)	Air volume (%)
360	50	41	12	4.5

■ Curing conditions (example)

- Preparation : 20°C × 1.5h
- Temperature increase rate : 25°C/h
- Curing : 55°C × 2h

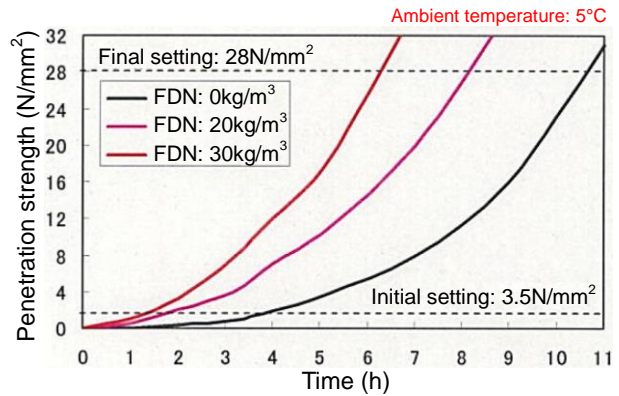
➤ Restrained expansion



■ Conditions

- 1) Preparation: 1.5h
- 2) Temperature rise: 55°C in 1.5h
- 3) Curing: 55°C for 2h; demoulding
- 4) Water curing: 20°C for 7 days
- 5) Air curing: 20°C after that

➤ Setting



- By the addition of 20kg/m³ of **Denka Fast Demoulder-N**, the initial setting is accelerated by ~3h as compared when **Denka Fast Demoulder-N** is not added. As such, shortened production cycles as well as reduction of thermal expansion from steam curing can be achieved.

Handling Precautions

- Refer to the Safety Data Sheet (SDS) before use.
- As this product is more hygroscopic than ordinary cement, once opened, the product should be used up completely.
- Given its high hygroscopicity, store the product in an area away from direct sunlight and moisture; at as low a humidity as possible.
- As the product is highly alkaline, seek medical attention immediately if product enters the eyes or is accidentally orally ingested.
- Wear protective gear (e.g., goggles, mask, gloves, and rubber boots) while handling the product.
- For further information, please contact DENKA.

Limitation of Liability

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

Denka Co. Ltd.

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

5J01JP

Denka