

# DENKA Σ2000

Additive for super-high-strength concrete

## Description

DENKA Σ2000 is a revolutionary additive for super-high-strength concrete products. DENKA Σ2000 forms ettringite( $3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 3\text{CaSO}_4 \cdot 32\text{H}_2\text{O}$ ) and Calcium Silicate in the concrete. As a result, it gives super-high strength on concrete products.

## TYPICAL PROPERTIES OF DENKA Σ2000

Specific Gravity (g/cm <sup>3</sup> )	Chemical Composition (%)		
	2.45	SO <sub>3</sub>	R <sub>2</sub> O
	11.4	1.00	0.04

## Where to Use

- High strength concrete: Pillar and Beam for multi-storey building.
- High pre-stressed products: High pre-stressed pile and pole.
- Abrasion resistance and/or impact resistance products: Waterway, industrial slab, road etc.

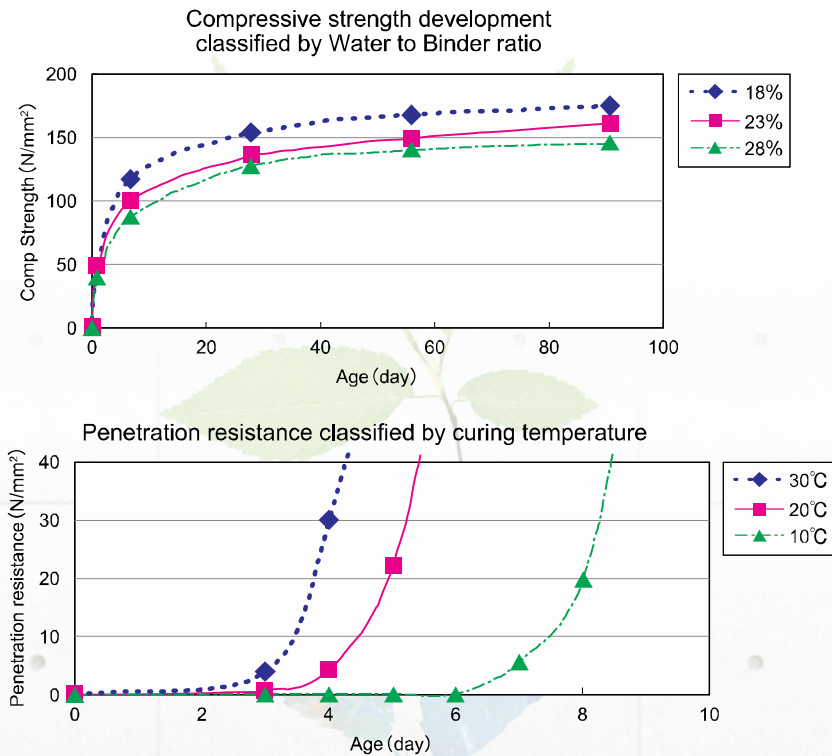
## Typical mix proportion

Mix No.	Slump (cm)	Mix proportion(kg/m <sup>3</sup> )					Comp. Strength at (N/mm <sup>2</sup> )			Curing
		Water	OPC	sand	Gravel	Σ 2000	1day	7days	28days	
1	8	165	400	863	950	0	51.0	57.1	65.8	steam
2	8	145	400	853	950	60	85.6	93.0	100.9	
3	12	158	450	791	1000	0	57.2	67.4	74.9	
4	12	142	450	743	1031	60	90.1	102.6	113.3	standard
5	65	150	486	800	900	50	38.9	86.7	128.0	
6	65	150	783	800	900	50	49.4	118.2	153.9	

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

## Properties



## Precautions for handling

- Refer to Material Safety Data Sheet (MSDS) before use
- Concrete properties will differ somewhat depending upon the characteristics of cement and aggregates
- Compact concrete thoroughly, otherwise it doesn't give enough strength
- Concrete using  $\Sigma 2000$  is high viscosity. Therefore, assemble the concrete mould securely
- Poly-carboxylic acid based super plasticizer is recommended
- For measuring concrete properties correctly:
  - (i) Protect the surface of the test piece from drying.
  - (ii) Use grind method, do not use capping method, for both loading face of the test piece
- For further information, please contact DENKA.

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