



TECHNICAL SERVICE & INNOVATION

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CEMENT TECHNICAL DATA SHEET

PRO CEMENT H-UKR N

A manufacturing process with low emissions of CO₂



- **DECARBONIZED CEMENT, 0% CLINKER**
- **CARBON FOOTPRINT 6 TIMES LESS COMPARED TO A PORTLAND CEMENT**
- **MADE IN FRANCE**

“ THE BEST CO₂ IS THE ONE YOU DON'T PRODUCE ”

DOMAINS OF USE

- Ready-mixed plant
- Construction site concrete
- Precast (with or without heat treatment)

APPLICATIONS

- Reinforced or unreinforced concrete
- Indoor or outdoor use

PROPERTIES

- Concrete with a resistance class of C16 [2,320] to C50 [7,250] (on MPa [Psi], on Cylindrical Concrete Specimens at 28 days)
- Concrete of any consistency class (Slump from 0 to 250 mm [9.4 in] and Slump Flow from 350 [13.8 in] to 650 mm [25.6 in])
- Workability maintained up to 120 mins
- Continuation of wall formwork removal pace on worksites up to outside T° > 12°C [53°F] (under this temperature, use H-UKR R)

ASSESSMENTS

- Under Technical Assessments

Compressive Strength in MPa [Psi]

According to an internal protocol derived from EN 196-1

Properties	Requirements	Average values
Compressive strength at 1 day	-	20.1 [2,915]
Compressive strength at 2 days	≥ 20.0 [2,900]	31.1 [4,510]
Compressive strength at 7 days	-	45.8 [6,643]
Compressive strength at 28 days	≥ 52.5 [7,615]	58.3 [8,456]

Chemical characteristics (%)

Properties	Requirements	Average values
Corrected loss on ignition	≤ 8.5	7.4
Sulphate content (SO ₃)	≤ 4.0	0.10
Chloride content (Cl)	≤ 0.10	< 0.02
Sulphide content (S ²⁻)	-	0.60

Physical characteristics

Properties	Requirements	Average values
Heat of Hydration • at 41 h (kJ/kg [cal/g]) • at 120 h (kJ/kg [cal/g])	≤ 270 [64.5] -	157 [37.5] 193 [46.1]
Fineness specific surface (m ² /kg)	-	[500-550]
Density (g/cm ³ [lb/yd ³])	-	2.65 [4,467]
Colorimetry	-	L* > 85 a* > 0.30 b* > 3.0

Al ₂ O ₃	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	SiO ₂	TiO ₂
9.2%	35.1%	0.40%	0.40%	6.4%	0.20%	7.7%	30.2%	0.60%

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20°C
[70°F]

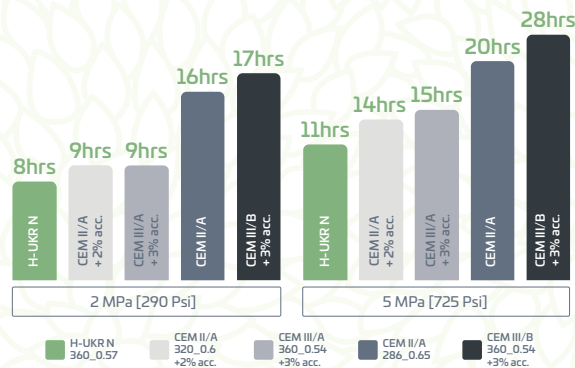
MATURITY LEVEL

Results of maturity level studies at a young age of different cements.

In temperate conditions, the behavior of concretes based on PRO CEMENT H-UKR N cement and accelerated concretes based on CEM II/A (K94% S6%) and CEM III/A (K51% S49%) is similar.

Adding an accelerator to CEM III/B (K34% S66%)-based concrete does not achieve the performance of PRO CEMENT H-UKR N cement-based concrete.

Note: K=Clinker & S=Slag



RECOMMENDATIONS FOR USE

- Use clean aggregates, free from organic matter
- Use only the Chryso EnviroMix ULC 5500 plasticizing admixture (extension of rheology maintenance in hot weather by 30 to 45 mins depending on the concrete formulation).
- Take all precautions during horizontal pouring by systematically carrying out a cure. The curing products on the market are suitable. Water curing is prohibited.
- Use appropriate personal protective equipment (PPE): pants, long-sleeved clothing, waterproof gloves, waterproof shoes, safety glasses, etc.

The shelf life of PRO CEMENT H-UKR N CEMENT is 24 months (in dry storage conditions).

Packaging is:

- in bulk (30-T tank maximum)
- in 1-T big bags
- in 25-kg [55-lb] bags



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RECOMMENDATIONS FOR USE

- Ensure that equipment is clean before producing mortar or concrete.
- Do not mix PRO CEMENT H-UKR N with any other material such as Portland cement, lime, etc.
- Aim for a Water/Cement ratio as low as possible, compatible with the consistency of the mortar/concrete for its use.
- Only use admixtures recommended by HOFFMANN GREEN CEMENT TECHNOLOGIES.
- For pouring horizontal surfaces, it is possible to add anti-crack fibers (glass fiber, cellulose, or polypropylene) to the mixture. Always use a curing product to prevent the concrete from drying out. Water curing is prohibited; commercial treatment products are suitable.
- Use appropriate personal protective equipment (PPE): pants, long-sleeved clothing, waterproof gloves, waterproof shoes, safety glasses, etc.
- Store bags of PRO CEMENT H-UKR N cement in a dry location.



FORMWORK REMOVAL TIME GUIDELINES

Average temperature	Time required for removing from structures after pouring
Between 20°C [70°F] and 35°C [95°F]	The day after
Between 15°C [60°F] and 20°C [70°F]	The day after
Between 10°C [50°F] and 15°C [60°F]	At 48 hrs
< 10°C [50°F]	Between 48 hrs and 72 hrs

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RECOMMENDED QUANTITIES FOR MORTAR AND CONCRETE COMPOSITIONS INTENDED FOR MASONRY WORK.

It is important to comply with the quantities and professional standards for implementation

Quantity for one 25-kg [55-lb] bag of H-UKR cement	Equivalent quantity of cement	Fine aggregates	Coarse aggregates	Water	Mixing Volume
Masonry concrete	350 kg/m ³ [590 lb/yd ³]	4 buckets	5 buckets	≈ 12 liters [3.2 gal]	≈ 70 liters [18 gal]
Masonry mortar	300 kg/m ³ [500 lb/yd ³]	8 buckets	-	≈ 18 liters [4.8 gal]	≈ 80 liters [21 gal]
	350 kg/m ³ [590 lb/yd ³]	7 buckets	-	≈ 16 liters [4.2 gal]	≈ 70 liters [18 gal]
Traditional screed mortar (dry)	300 kg/m ³ [500 lb/yd ³]	8 buckets	-	≈ 14 liters [3.7 gal]	≈ 85 liters [22 gal]
	350 kg/m ³ [590 lb/yd ³]	7 buckets	-	≈ 12 liters [3.2 gal]	≈ 75 liters [20 gal]
Paving mortar	250 kg/m ³ [420 lb/yd ³]	10 buckets	-	≈ 25 liters [6.6 gal]	≈ 100 liters [26 gal]
	300 kg/m ³ 500 lb/yd ³]	8 buckets	-	≈ 20 liters [5.3 gal]	≈ 80 liters [21 gal]

The quantities are given for information purposes only. They may vary depending on the mineralogical nature and characteristics of the sand and gravel used.

Water quantities are mentioned for sand and dry gravel. The quantity of water to use during mixing must be adapted according to the humidity of the sand and gravel.

1 bucket ≈ 10 liters [2.6 gal]

H-UKR N

