

NITRO®

COLD WEATHER CONCRETE ADDITIVE



RAMKA
CONSTRUCTION
CHEMICALS

NITRO® is a liquid cold-weather concrete admixture that increases concrete temperature and accelerates setting, helping prevent freezing and increasing early-age strength. Its chloride-free formulation avoids chloride-induced reinforcement corrosion from the admixture and is suitable for reinforced-concrete structures.

Applications

- Concrete production, transport and placement in cold weather
- Increasing concrete temperature in cold weather
- Increasing early-age concrete strength
- Accelerated concrete setting
- Earlier and easier formwork removal

Advantages / Benefits

- High efficiency at a low dosage
- Chloride-free and suitable for reinforced concrete
- Easier concrete-surface trowelling
- Reduced project costs
- Accelerated hydration and increased heat generation
- Increased early strength compared with concrete without the admixture
- Earlier formwork removal
- Concrete placement down to -15°C
- Compatibility with admixtures and Portland cements

Features

Cement dispersion agent.

Guideline for Use

At the batching plant, blend NITRO with part or all of the mixing water before adding it to concrete to improve dispersion.

For truck-mixer addition at the project site, bring the concrete to the discharge opening and pour the admixture onto it. Mix at high speed for 3 to 4 minutes until it is distributed throughout the concrete.

Dosage

Determine dosage from project conditions, ambient temperature and cement content using the separately approved dosage grid, expressed as percentages by mass of cement. For the stated examples, concrete with 300 kg/m³ of cement at -15°C requires 12 kg/m³ of NITRO, whereas concrete with 400 kg/m³ of cement at -5°C requires 4 kg/m³. Higher cement content produces more hydration heat, reducing the antifreeze-admixture requirement.

Compatibility

NITRO is compatible with concretes containing silica fume, fly ash, or ground granulated blast or slag cement. In case of requirement of utilizing other admixtures in concrete, it is highly recommended to add them separately. Always conduct trials before combining products in specific mixes and contact our Technical Service Department for information about specific combinations.

Cold-weather protection

During cold-weather concreting, NITRO may reduce protection and heating requirements and costs, but concrete protection remains necessary.

Provides improved material flow and extrusion characteristics.

Storage

Should be protected from direct sunlight and frost. Keep container in the temperature range between +5°C and +40°C. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage condition contact RAMKA Technical Services Department.

Basis of Data

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Health and Safety

This product does not contain any hazardous substance to human health and the environment. However, it should not be swallowed and contacted with skin and eyes.

Rubber gloves, boots and goggles should be used during application. Accidental splashes on the skin should be washed with soap and water and any contaminated clothing removed.

Contact with eyes should be avoided and if any accidental contamination does occur they should be washed with copious amounts of water and medical attention sought.

Refer to the Safety Data Sheet (MSDS).

Fire

NITRO is not flammable.

Additional Information

For additional information on NITRO admixture, consult your local sales representative.

Product Information

State	Liquid
Packaging	20KG Plastic Can / 1100KG IBC Container
Chloride Content	None
Appearance / Color	Blue
Shelf Life	12 months in the original package
Storage Condition	Should be protected from direct sunlight and frost. Keep container in the temperature range between +5°C and +40°C.
Density	1.07 ± 0.02 g/cm ³ at 20°C
pH	5-7
Alkali content	<5 g Na ₂ O equivalent/L
Air content increase	<2% (increase, not total air content)

Recommended Dosage

Ambient air temperature (°C)	Cement content (kg/m ³)		
	300	350	400
-5	2	1.5	1
-10	3	2.5	2
-15	4	3.5	3

Values are percentages by mass of cement.



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Tel: (+98)25 32 215

www.RamkaCo.com

Important Notes: The information, and, in particular, the recommendations relating to the application and end-use of RAMKA products, are given in good faith based on RAMKA's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with RAMKA's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. RAMKA reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.