

TECHNICAL DATA SHEET



FEATURES & BENEFITS

• Quality

Ensures consistent performance through controlled manufacturing and strict quality standards. Provides reliable concrete production with uniform strength development and workability. Delivers high early and final strength, supporting faster construction progress, earlier formwork removal, and efficient handling across a wide range of construction applications.

• Chemistry

Optimized composition to improve durability, offering resistance to sulphate and chloride attack while controlling heat of hydration to reduce thermal cracking. Provides excellent workability for smooth mixing, placing, and compaction, supporting consistent concrete quality, improved surface finish, and reliable performance across multiple construction applications.

MODERATE SULFATE RESISTING PORTLAND CEMENT (MSRPC) **ASTM C-150 TYPE-II**

INTRODUCTION

National Cement CO. P.S.C with over 4 decades of experience produces highest quality cements in the UAE. With some of the most prestigious projects like Dubai International Airport, Jabel Ali Port, Palm Jumeirah, Dubai Marina, Dubai Metro, Khalifa Port, Dubai Canal, Expo 2020 etc to name a few is testament to markets desire for highest quality cements.

PRODUCT

- Moderate Sulphate-Resisting Portland Cement (MSRPC) is produced to comply with the chemical and physical requirements of **ASTM C 150 TYPE II - 2020 standards**.
- MSRPC (Moderate Sulphate Resisting Cement) is produced by inter-grinding high-grade clinker with premium-quality gypsum in carefully controlled proportions. It is designed for concrete structures exposed to soil or water containing moderate sulphate levels. MSRPC generates relatively low heat of hydration, reducing temperature rise and the risk of thermal cracking in mass concrete. Its composition also helps minimize alkali-silica reaction, enhancing durability, structural stability, and the long-term performance of concrete in demanding environments.

ADMIXTURES AND ADDITIONS

Admixtures like air-entraining agents and workability aids, as well as extenders such as Ground Granulated Blast Furnace Slag (GGBS), Silica Fume, and Fly Ash, are fully compatible with National Cement Company's Moderate Sulphate Resisting Cement (MSRPC). It is recommended to perform trial mixes to determine the optimal proportions for best results.



APPLICATIONS

Recommended for sulphate-rich environments such as foundations, piling works, and underground structures exposed to moderate sulphate levels. Suitable for marine and tidal zones, improving durability and resistance to sulphate attack and alkali-silica reaction. Its low heat of hydration reduces shrinkage cracking in large structures, while enhanced workability and pumpability ensure easier concrete placement and handling.

MANAGEMENT SYSTEMS

NCC is approved to the following management systems:

- ISO 9001 – 2015 Quality management.
- ISO 14001 – 2015 Environmental management.

Availability

- Bulk 
- 50 kg Bag 
- 1.50 ton Jumbo Bags 



National Cement Company

P.C.S., Dubai

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HEALTH AND SAFETY

- Avoid direct contact with skin and eyes by using protective gloves, clothing, and eyewear.
- Inhalation of cement dust may cause respiratory irritation; use appropriate respiratory protection in dusty environments.
- In case of skin or eye contact, rinse immediately with plenty of water and seek medical advice if irritation persists.
- Always follow local health and safety regulations when handling and storing MSRPC.
- For more information, refer to the Material Safety Data Sheet (MSDS).

TEST CERTIFICATES

NCC delivers comprehensive data and routine certification for critical properties, covering compressive strength of mortar prisms, fineness, setting times, soundness, and the chemical composition on a weekly basis.

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STORAGE

- Cement should be stored in covered dry conditions to prevent quality deterioration caused by premature hydration and carbonation. Even moisture from the air can be as harmful as direct moisture exposure.
- Bulk cement should be stored in well-maintained silos, ensuring no damp air or moisture ingress.
- Bagged cement must remain unopened, elevated off the ground, and stored in dry covered conditions. Bags should be stacked safely and securely to maintain stability.



Cement Product Range

Product	Description	EN Standard	ASTM Standard
Ordinary Portland Cement (OPC)	Produced by inter-grinding high-grade clinker with premium-quality gypsum. Suitable for general-purpose applications including concrete, mortars, and grouts.	EN 197-1: 2011 CEM I 42.5R	ASTM C150 Type I
Sulfate-Resistant Cement (SRPC)	Formulated to withstand high sulfate environments, particularly in foundations, marine structures, and sewage systems.	EN 197-1: 2011 CEM I 42.5 R LA SR 3 (Sulfate Resistant)	ASTM C150 Type V
Moderate Sulfate-Resistant Portland Cement (MSRPC)	Offers resistance to moderate sulfate exposure and is recommended for projects where durability against sulfate is required but in lower concentrations.	EN 197-1: 2011 CEM I 42.5R	ASTM C150 Type II
Ground Granulated Blast Furnace Slag (GGBS)	GGBS is used in concrete for enhanced durability, reduced heat of hydration, and improved resistance to chemicals.	EN 15167-1:2006	ASTM C989

TYPICAL PARAMETERS AS PER

ASTM C 150 TYPE II -2020

Characteristics	Unit	SPECIFICATION ASTM C 150 TYPE II-2020	Typical Results as Per ASTM C 150 TYPE II-2020
Loss On Ignition (LOI)	%	3.0 (Maximum)	1.50 – 2.95
Insoluble Residue	%	1.50 (Maximum)	0.20 – 0.60
Silicon Dioxide (SiO₂)	%	---	19.50 – 20.50
Aluminum Oxide (Al₂O₃)	%	6.0 (Maximum)	4.20 – 5.10
Ferric Oxide (Fe₂O₃)	%	6.0 (Maximum)	3.00 – 3.60
Calcium Oxide (CaO)	%	---	63.00 – 64.00
Magnesium Oxide (MgO)	%	6.0 (Maximum)	1.00 – 2.00
Sulphur Trioxide (SO₃)	%	3.0 (Maximum)	2.40 – 2.80
Chloride Content	%	---	0.01 – 0.06
Equivalent Alkali	%	0.60 (Maximum)	0.45 – 0.59
Tricalcium Aluminate (C3A)	%	8.0 (Maximum)	6.00 – 7.60
Fineness - Specific Surface	m ² /Kg	260 (Minimum)	300 – 350
Initial Setting Time	Mint.	45 (Minimum)	110 – 180
Final Setting Time	Mint.	375 (Maximum)	200 – 250
Soundness	Mm	0.80 (Maximum)	0.01 – 0.10
Compressive Strength – 2 Days	N/mm ²	10.0 (Minimum)	20 – 27
Compressive Strength – 7 Days	N/mm ²	17.0 (Minimum)	27 – 29
Compressive Strength – 28 Days	N/mm ²	28.0 (Minimum)	36 – 40



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