



High Sulfate Resistant Portland Cement (SRC – Type V cement) Technical Data Sheet

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: High Sulfate Resistant Portland Cement (SRC – Type V cement)

Manufacturer: Gulf Cement Company P.S.C

Manufacturing Location: Ras Al Khaimah, United Arab Emirates

Product Description:

GCC manufactures High Sulfate Resisting Cement as per international standards conforming to both ASTM and EN standards. Sulfate Resisting Cement is a blended cement designed to improve the performance of concrete where the risk of sulfate attack may be present. It also provides improved durability for concrete in most aggressive environments, reducing the risk of deterioration of the structure and structural failure.

SECTION 2 – INTENDED USES

High Sulfate Resistant Portland Cement (SRC – Type V cement) is intended for use in concrete structures exposed to sulfate-bearing soils, groundwater, and aggressive environments where enhanced durability and resistance to sulfate attack are required. It is suitable for structural and infrastructure applications where long-term durability is critical.

SECTION 3 – PRODUCT COMPOSITION (GENERAL)

Sulfate Resisting Cement is a blended cement manufactured with controlled chemical composition to enhance resistance to sulfate attack and improve durability in aggressive environments.

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01/12/2025



SECTION 4 – PRODUCT CHARACTERISTICS & PERFORMANCE

SRC supplied by GCC is characterized by:

- Maximum resistance to chloride ions, minimizing the risk of corrosion of reinforced steel.
- High level of concrete performance and structural integrity in highly aggressive sulfate and acidic environments.
- Minimizes the risk of chemical attack resulting in concrete deterioration and structural failure.



SECTION 5 – APPLICATIONS

Sulfate Resisting Cement is suitable for use in:

- Food processing plants
- Geothermal areas
- Sewerage treatment plants
- Mines and other acidic soil environments
- Dairying, forestry, fishing and other environments with structures susceptible to chemical attacks

To minimise the risk of chloride-induced corrosion in reinforcing steel and to ensure long-term durability, Sulfate Resisting Cement should be specified for applications such as:

- Wharfs and marinas
- Sea walls
- Dams and reservoirs
- Water and sewage pipelines and treatment plants
- Offshore platforms
- Bridges
- Other submerged structures in tidal and splash zones



SECTION 6 – QUALITY MANAGEMENT & ASSURANCE

Gulf Cement Company operates certified management systems and is certified to:

- ISO 9001:2015 — Quality Management
- ISO 14001:2015 — Environmental Management
- ISO 45001:2018 — Occupational Health & Safety
- API Spec Q1 — 10th Edition (for Class G cement)

GCC maintains a modern laboratory infrastructure to ensure product consistency and compliance with ASTM and BS EN and other International standards.



SECTION 7 – TESTING & LABORATORY FACILITIES

X-Ray Testing Laboratory

GCC uses online X-ray analyzers to monitor product quality at all stages of production, ensuring compliance with final product specifications and supporting stable plant operation through efficient process control.

Physical Testing Laboratory

Cement is tested against ASTM and BS EN standards using:

- Blaine specific surface area
- Laser particle size analysis
- Flow tests
- Setting time tests
- Jolting machines
- Compressive strength testing
- Heat of hydration tests
- Soundness tests (Le Chatelier and Autoclave)



SECTION 8 – PACKAGING & SUPPLY

OPC is supplied in the following forms:

- Bulk supply
- 50 kg standard bags
- Jumbo bags: 1.0 Ton / 1.5 Ton (upon customer requirement)

SECTION 9 – PROJECT REFERENCES

GCC OPC has been used in major landmark projects in the UAE and internationally, including:

- Burj Khalifa
- Dubai Metro
- Dubai Airport Terminal 3

**Test Certificate****ASTM C150 – TYPE I CEMENT****CHEMICAL COMPOSITION**

Parameter	Unit	Requirements	Typical Results
Loss on Ignition	%	Max. 5.0	1.19
Insoluble Residue	%	Max. 5.0	0.22
Silicon Dioxide (SiO ₂)	%	—	20.97
Aluminium Oxide (Al ₂ O ₃)	%	—	4.33
Ferric Oxide (Fe ₂ O ₃)	%	—	4.40
Calcium Oxide (CaO)	%	—	64.33
Magnesium Oxide (MgO)	%	Max. 5.0	1.44
Sulphur Trioxide (SO ₃)	%	Max. 3.0	2.05
Tricalcium Silicate (C ₃ S)	%	—	61.3
Dicalcium Silicate (C ₂ S)	%	—	13.9
Tricalcium Aluminate (C ₃ A)	%	Max. 5.0	4.0
Alkalies (Na ₂ O + 0.658K ₂ O)	%	Max. 0.60	0.589
Chlorides	%	Max. 0.10	0.024



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PHYSICAL PROPERTIES

Parameter	Unit	Requirements	Typical Results
Specific Surface (Air Permeability)	m ² /kg		3240
Soundness: Le Chatelier Expansion	mm	Max. 10	0.56
Time of Setting: Vicat test – Initial	Minutes	Min. 60	200
Time of Setting: Vicat test – Final	Minutes	—	245
Compressive Strength – 2 Days	N/mm ²	>10	22.9
Compressive Strength – 7 Days	N/mm ²	—	35.7
Compressive Strength – 28 Days	N/mm ²	≥ 42.5 & ≤ 62.5	50.4 50.4

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**Test Certificate****ASTM C150 TYPE V CEMENT****CHEMICAL COMPOSITION**

Parameter	Unit	Requirements	Typical Results
Loss on Ignition	%	Max. 3.0	1.16
Insoluble Residue	%	Max. 1.5	0.22
Silicon Dioxide (SiO ₂)	%	—	21.25
Aluminium Oxide (Al ₂ O ₃)	%	—	3.75
Ferric Oxide (Fe ₂ O ₃)	%	—	5.37
Calcium Oxide (CaO)	%	—	64.09
Magnesium Oxide (MgO)	%	Max. 6.0	1.29
Sulphur Trioxide (SO ₃)	%	Max. 2.3	1.76
Tricalcium Silicate (C ₃ S)	%	—	61.5
Dicalcium Silicate (C ₂ S)	%	—	14.5
Tricalcium Aluminate (C ₃ A)	%	Max. 5.0	0.9
Alkalies (Na ₂ O + 0.658K ₂ O)	%	—	0.590
Chlorides	%	—	0.021



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PHYSICAL PROPERTIES

Parameter	Unit	Requirements	Typical Results
Specific Surface (Air Permeability)	m ² /kg	Min. 260	334
Autoclave Expansion	%	Max. 0.80	0.085
Time of Setting: Vicat test – Initial	Minutes	Min. 45	190
Time of Setting: Vicat test – Final	Minutes	Max. 375	235
Air Content of Mortar	Vol(%)	Max. 12	7.3
Compressive Strength – 3 Days	psi	Min. 1160	2810
Compressive Strength – 7 Days	psi	Min. 2180	3997
Compressive Strength – 28 Days	psi	Min. 3050	5303
Heat of Hydration at 7 Days	kJ/kg	—	265

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LASER PARTICLE SIZE ANALYSIS

