

FUERZA MFS-MIX

HIGH PERFORMANCE SUPERPLASTICIZER FOR PRECAST CONCRETE APPLICATION

FUERZA MFS-MIX is a **high-performance, low-dosage superplasticizer** formulated on **Melamine Formaldehyde Sulphonate (MFS)** polymer technology. It is specifically engineered to provide superior water reduction, enhanced workability, and accelerated early-age strength development without adversely affecting the rheological characteristics of the concrete mix. The admixture is particularly suitable for the production of **precast, pre-stressed, and high-strength concrete**, where rapid strength gain, reduced demoulding time, and increased production efficiency are critical. By significantly improving cement particle dispersion, FUERZA MFS-MIX produces dense, durable concrete with enhanced mechanical properties, making it ideal for demanding structural and industrial concrete applications.

APPLICATIONS

- Specifically developed for **precast, pre-stressed, and high-strength concrete** production.
- Ideal for the manufacture of **railway sleepers, precast beams, utility poles, bridge girders, and other precast structural elements**.
- Improves concrete flowability, facilitating placement in **heavily reinforced sections** where conventional vibration is difficult.
- Enhances cement particle dispersion, producing a **uniform, homogeneous concrete matrix** with reduced segregation and bleeding.
- Enables substantial reduction in the **water-to-cement ratio**, resulting in dense, low-permeability concrete.
- Increases the durability and service life of concrete exposed to **marine, coastal, hydraulic, and other aggressive environments**, particularly in tidal zones.
- Improves workability without introducing significant air entrainment, ensuring superior finishing characteristics and consistent mechanical performance.
- Suitable for applications requiring **high early strength development**, rapid demoulding, and long-term structural durability.

STANDARDS COMPLIANCE

FUERZA MFS-MIX is manufactured and tested in accordance with the requirements of **ASTM C494 Type F, BS 5075: Part 1, and IS 9103**, ensuring compliance with internationally recognized standards for **high-range water-reducing (superplasticizing) concrete admixtures**.

TECHNICAL INFORMATION

Supply form:	Liquid
Specific gravity:	1.1 + 0.03
Chloride contents:	Nil
Color:	Transparent

ADVANTAGES

- Significantly reduces the water-to-cement ratio while maintaining excellent workability and placement characteristics.
- Promotes rapid early-age strength development, enabling accelerated construction schedules and earlier load application.
- Enhances long-term compressive strength through improved cement hydration and optimized microstructure development.
- Produces dense, low-permeability concrete with superior resistance to water ingress and moisture penetration.
- Facilitates early formwork stripping and faster demoulding, thereby improving production efficiency in precast and cast-in-place applications.

FUNCTION

FUERZA MFS-MIX incorporates advanced **Melamine Formaldehyde Sulphonate (MFS)** polymer technology to promote rapid and efficient dispersion of cement particles throughout the concrete matrix. The admixture functions by **reducing the surface tension of the mixing water and imparting electrostatic repulsive forces between cement particles**, thereby minimizing flocculation and enhancing particle dispersion. This mechanism significantly improves the rheological properties of fresh concrete, resulting in superior workability and flowability at substantially reduced water-to-cement ratios. Consequently, the concrete develops a denser microstructure, increased compressive strength, lower permeability, and enhanced long-term durability.

COMPATIBILITY

FUERZA MFS-MIX is compatible with **Ordinary Portland Cement (OPC)**, blended hydraulic cements, **sulphate-resistant cement (SRC)**, and **white cement**, making it suitable for a wide range of concrete formulations. When multiple admixtures are specified, **FUERZA MFS-MIX shall not be pre-blended with other chemical admixtures**; each admixture must be introduced into the concrete mix **independently** to ensure optimum performance and compatibility. The product is **non-corrosive** and does not adversely affect embedded steel reinforcement, prestressing tendons, or other metallic components within the concrete matrix.

METHOD OF USE

FUERZA MFS-MIX shall be **introduced directly into the concrete mixer simultaneously with the gauging water** to ensure uniform dispersion throughout the mix. The mixing water dosage should be **adjusted accordingly** to achieve the desired workability while maintaining the specified **water-to-cement ratio**, thereby optimizing the admixture's water-reducing efficiency and strength-enhancing performance.

PERMEABILITY

The substantial reduction in the **water-to-cement ratio** achieved with FUERZA MFS-MIX significantly decreases the permeability of hardened concrete, thereby enhancing its durability and resistance to the ingress of water and aggressive chemicals. Its superior dispersing capability also improves the workability of fresh concrete, facilitating efficient placement and thorough compaction, which results in a dense, homogeneous, and highly impermeable concrete matrix.

COMPRESSIVE STRENGTH

FUERZA MFS-MIX enables a **significant reduction in mixing water, typically in the range of 20–25%, while maintaining the required slump**, resulting in accelerated early-age compressive strength development. When incorporated into a properly designed concrete mix, the admixture enhances cement particle dispersion and hydration efficiency, allowing the **ultimate compressive strength to increase by up to 25%**, while producing a denser, more durable concrete microstructure.

RECOMMENDED DOSAGE

The recommended dosage of **FUERZA MFS-MIX** ranges from **0.3% to 1.2% by weight of cement**, depending on the required workability, strength development, and performance characteristics of the concrete mix. For applications demanding **exceptionally high early or ultimate compressive strength**, the dosage may be increased to **2.0% by weight of cement**, provided that appropriate **mix design adjustments and trial mixes** are conducted to optimize concrete performance and ensure the desired engineering properties.

SHELF LIFE

FUERZA MFS-MIX has an **extended storage stability** when maintained in its **original, tightly sealed containers** under recommended storage conditions. For optimum performance, the product is **recommended for use within 12 months from the date of manufacture**.

PACKAGING

FUERZA MFS-MIX is supplied in **210 L industrial-grade drums**, suitable for bulk storage, transportation, and large-scale concrete production applications.

