

FA-2 Protein-Based Foaming Agent

Technical Data Sheet



1. Product Overview

FA-2 is a high-stability protein-based cement foaming agent formulated with hydrolyzed animal protein technology. It is suitable for foam concrete, lightweight filling, roof insulation, and precast concrete applications.

The product appears as a brown viscous liquid with excellent foam stability, fine pore structure, and outstanding compatibility with cementitious systems.

The formulation is mildly alkaline and compatible with most ordinary Portland cement systems and mineral admixtures. Small-scale testing is recommended before large-scale application.

2. Standards and Test Methods

Test Item	Standard
Foamed Concrete Standard	ASTM C869
Preformed Foam Stability	ASTM C796
Density Test	GB/T 6750
pH Test	GB/T 9724
Chloride Ion Test	ASTM C1218
Compressive Strength Test	ASTM C495

3. Technical Specifications

Item	Specification
Appearance	Brown viscous liquid
pH Value	9.5-11.5 (Mildly alkaline)
Density (20°C)	1.05-1.10 g/cm ³
Solid Content	25-40%
Recommended Dilution Ratio	1:30 - 1:50
Foam Output	800-1200 L/L
Foam Half-Life	>120 min
Bubble Size Range	0.3-0.8 mm
Foam Density	40-80 g/L
Recommended Working Density	50±10 g/L
Chloride Ion Content	<0.1%
Shelf Life	12 months

4. Foamed Concrete Performance Reference

Dry Density	28-Day Compressive Strength	Thermal Conductivity
300 kg/m ³	1.0-1.5 MPa	0.08 W/m·K
500 kg/m ³	2.5-3.5 MPa	0.12 W/m·K
800 kg/m ³	5.0-7.0 MPa	0.18 W/m·K

5. Recommended Mix Design

300kg/m³ Lightweight Insulation Type

- Cement: 220kg
- Fly Ash: 80kg
- Water: 140kg
- Foam: Adjust according to target density

600kg/m³ High Strength Type

- Cement: 380kg
- Fly Ash: 120kg
- Water: 180kg
- Foam: Adjust according to target density

6. Main Applications

- Roof insulation foam concrete
- Floor heating backfill and leveling
- Bridge abutment and roadbed lightweight filling
- Precast lightweight concrete components
- Underground void filling
- Industrial thermal insulation layers

7. Project Case

Project Name: Poly Lugu Linyu Roof Insulation Project, Changsha

Project Area: 8,000 m²

Foamed Concrete Density: 400kg/m³

Application: Residential roof insulation

- Reduced structural load by approximately 35%

- Significantly improved thermal insulation performance
- Reduced construction period by approximately 20%

8. Construction Notes

- Recommended construction temperature: 5-35°C
- Avoid high-speed shear mixing to prevent foam damage
- P.042.5 or P.052.5 cement is recommended
- Continuous pumping operation is recommended
- Foam should preferably be used within 30 minutes after generation
- On-site testing is recommended before large-scale construction

9. Packaging and Storage

Packaging Type	Net Weight
Plastic Drum	25kg
Steel Drum	200kg

Store in a cool, dry, and well-ventilated environment away from direct sunlight.

Recommended storage temperature: 5-35°C.

Containers should be sealed immediately after use.

10. Safety Information

The product is safe under normal industrial use conditions.

Protective goggles and gloves are recommended during operation.

Wash hands thoroughly after handling.

11. Microstructure Analysis

FA-2 protein-based foaming agent produces foamed concrete with uniform, closed, and stable microporous structures.



12. Protein-Based vs Synthetic Foaming Agent Comparison

Item	Protein-Based	Synthetic
Foam Stability	High	Medium
Bubble Structure	Fine and uniform	Coarse
Concrete Strength	High	Lower
Water Retention	Excellent	Normal
Construction Adaptability	Excellent	Normal
Long-Term Stability	Excellent	Medium
Cost	Higher	Lower

13. Recommended Equipment Compatibility

- High-pressure foaming machine
- Continuous foaming system
- Integrated foam concrete machine
- Precast lightweight panel production line
- Automatic metering and mixing system
- Large-scale pumping system

FA-2 is compatible with most industrial foam concrete equipment systems.

14. Environmental and Compliance Certifications

Certification / Document	Description
Shanghai Research Institute of Chemical Industry	Third-party testing reports available
MSDS/SDS	Safety Data Sheet available
REACH	Compliant with EU REACH requirements (optional)
RoHS	Compliant with hazardous substance restrictions (optional)

15. About DWELLTECH

DWELLTECH specializes in foam concrete and cement foaming agent technology development, providing high-performance lightweight construction solutions for global markets.

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