



TECHNICAL DATA SHEET (TDS)

MICA DRILLING GRADE

Premium Muscovite Mica – Lost Circulation Material (LCM)

Product Information

Item	Description
Product Name	Drilling Grade Mica
Mineral Type	Premium Muscovite Mica
Chemical Family	Hydrated Potassium Aluminum Silicate
CAS No.	12001-26-2
EC No.	310-127-6
Appearance	Silver White Lamellar Flakes
Odor	Odorless
Physical Form	Free Flowing Flake Powder
Application	Lost Circulation Material (LCM)
Compatible Mud Systems	Water-Based, Oil-Based & Synthetic Drilling Fluids

Physical Properties

Parameter	Test Method	Specification	Result
Appearance	Visual	Silver White Flakes	Conforms
Mineral Type	XRD	Muscovite	Muscovite
Particle Shape	Optical Microscopy	Lamellar	Lamellar
Color	Visual	Silver White	Silver White
Specific Gravity	ASTM D854	2.70–2.90	2.81
Bulk Density	ASTM D1895	0.20–0.35 g/cm ³	0.27 g/cm³
Moisture Content	ASTM D2216	Max. 0.50 %	0.18 %
pH (10% Slurry)	ASTM E70	6.5–9.0	7.6
Hardness (Mohs)	ASTM C241	2.5–3.0	2.8
Water Solubility	ASTM D1148	Insoluble	Pass
Oil Absorption	ASTM D281	40–70 g/100g	53 g/100g
Electrical Conductivity	ASTM D1125	Low	Pass
Thermal Stability	Internal Method	≥800°C	850°C
Melting Point	Literature	>1200°C	1250°C
Acid Resistance	ASTM D543	Excellent	Pass
Alkali Resistance	ASTM D543	Excellent	Pass
Abrasiveness	ASTM D1242	Low	Pass
Loss on Ignition (LOI)	ASTM C114	Max. 6.0 %	4.42 %



Chemical Composition (XRF)

Component	Specification	Result
Silicon Dioxide (SiO ₂)	45.0–50.0 %	47.23 %
Aluminum Oxide (Al ₂ O ₃)	33.0–38.0 %	35.84 %
Potassium Oxide (K ₂ O)	8.0–12.0 %	10.41 %
Iron Oxide (Fe ₂ O ₃)	Max. 3.00 %	1.47 %
Magnesium Oxide (MgO)	Max. 1.50 %	0.71 %
Calcium Oxide (CaO)	Max. 0.50 %	0.18 %
Sodium Oxide (Na ₂ O)	Max. 0.80 %	0.34 %
Titanium Dioxide (TiO ₂)	Max. 1.00 %	0.56 %
Manganese Oxide (MnO)	Max. 0.20 %	0.04 %
Trace Minerals	Balance	Balance

Particle Size Distribution

Grade	Particle Size	Typical Result	Application
Fine	150–600 µm	95% Within Range	Micro Fractures
Medium	600–1200 µm	94% Within Range	General Drilling
Coarse	1200–2400 µm	93% Within Range	Large Fractures
Blend	Customized	As Requested	Severe Loss Circulation

Drilling Performance

Property	Result
Lost Circulation Control	Excellent
Fracture Bridging Efficiency	Excellent
Plugging Efficiency	Excellent
Filter Cake Quality	Excellent
Differential Sticking Reduction	Excellent
High Pressure Stability	Excellent
High Temperature Stability	Excellent
Lubricity Improvement	Very Good
Mud Compatibility	Excellent
HTHP Performance	Excellent
Chemical Compatibility	Excellent
Suspension Stability	Excellent
Non-Toxic	Yes
Environmentally Acceptable	Yes



Recommended Dosage

Application	Recommended Concentration
Preventive Treatment	5–15 lb/bbl
Moderate Loss Circulation	15–30 lb/bbl
Severe Loss Circulation	30–60 lb/bbl
LCM Pill	Up to 80 lb/bbl

Packaging

Item	Specification
Standard Bag	25 kg PP Laminated Bag
Big Bag	500 kg
Jumbo Bag	1000 kg
Palletized	Available
Private Label	Available

Storage & Shelf Life

Parameter	Description
Storage Condition	Store in a cool, dry and ventilated area.
Moisture Protection	Keep container tightly closed.
Shelf Life	Unlimited under recommended storage conditions.

Applications

- Oil & Gas Drilling
- Geothermal Wells
- Water Well Drilling
- HDD (Horizontal Directional Drilling)
- Mining Exploration
- Core Drilling
- Workover Operations
- Completion Fluids
- High Temperature Wells