

Basic Chromium Sulfate — GS Series

1. PRODUCT IDENTIFICATION

Product	Basic Chromium Sulfate (GS-A, GS-B, GS-C, GS-E)
Chemical Name	Chromium(III) Sulfate Basic / Cr(OH)SO ₄
CAS / EINECS	12336-95-7 / 235-595-8
Appearance	Dark green to violet crystalline powder, odorless, water-soluble
Manufacturer	Hanzhong Delike New Materials Co., Ltd. — Hanzhong, Shaanxi, China

2. TECHNICAL SPECIFICATIONS

PARAMETER	GS-A	GS-B	GS-C	GS-E
Type	Masked	High-Cr Low-Basicity	High-Basicity	Automation
Chromium (Cr)	25±1%	26±1%	22±1%	20±1%
Basicity	33±1%	33±1%	40±1%	40±1%
Water Insoluble	≤0.10%	≤0.10%	≤0.10%	—
Iron (Fe)	≤0.05%	≤0.05%	≤0.05%	≤0.05%
Cr ⁶⁺	ND	ND	ND	ND
pH (1% sol.)	2.5–3.5	2.5–3.5	3.0–4.0	3.0–4.0
Bulk Density	0.8–1.1	0.8–1.1	0.8–1.1	0.8–1.1
Particle D50	≤200µm	≤100µm	≤100µm	≤100µm
Moisture	≤1.0%	≤1.0%	≤1.0%	≤1.0%

ND = Not Detected (<0.001%). All values wt% unless noted. Bulk density in g/cm³. COA provided per batch.

3. GRADE DESCRIPTIONS

GS-A Masked

Leather tanning with masking systems. 25% Cr, 33% basicity. Cowhide, sheepskin, pigskin.

GS-B High-Cr Low-Basicity

Fine chemicals & catalyst support. 26% Cr, maximum chromium availability.

GS-C High-Basicity

Specialty materials & Cr₂O₃ precursor. 40% basicity, ceramic pigments.

GS-E Automation

Consistent flow for automated dosing lines. 40% basicity, mass manufacturing.

4. PRIMARY APPLICATIONS & RECOMMENDED GRADES

INDUSTRY / APPLICATION	GRADE	KEY PERFORMANCE
Leather Tanning (85%+ market)	GS-A, GS-B	Shrinkage >100°C, superior fullness & dye uptake
Textile Printing & Dyeing	GS-A, GS-E	Grade 5 light/wash/rub fastness
Chromium Salt & Cr ₂ O ₃ Synthesis	GS-B, GS-C	98%+ conversion, 99.5% precursor purity
Pigments, Ceramics & Glass	GS-C	Stable emerald color, 1200°C firing
Metal Surface Passivation	GS-B, GS-C	96h+ salt spray, dense Cr ³⁺ film
Catalysis & Advanced Materials	GS-B	95%+ selectivity, 50+ recycles
Fe-Cr Flow Battery Electrolyte	GS-B, GS-C	99.5% purity, >20,000 cycles

5. APPLICATION DETAILS

5.1 Leather Tanning — Core Industry (85%+ Market)

BASROM GS-A masked basic chromium sulfate is purpose-built for leather tanning. Cr^{3+} ions crosslink with collagen amino and carboxyl groups, stabilizing fiber structure. Result: shrinkage temperature $>100^{\circ}\text{C}$, water-resistant, mold-proof, elastic leather. High-basicity for cow/pig; low-basicity high-purity for premium sheepskin and luxury goods. Retanning aid with aluminum, zirconium, and vegetable tannins.

5.2 Textile Printing & Dyeing

Essential acid dye mordant for wool, silk, nylon. Cr^{3+} forms stable dye complexes for dramatically improved light, rub, and wash fastness. Compatible with neutral, acid mordant, reactive black dyes. Military green, dark grey, black textile color systems.

5.3 Chromium Salt & Cr_2O_3 Synthesis

Foundational building block for the chromium chemical value chain. Precursor for $\text{Cr}(\text{OH})_3$, calcination feedstock for Cr_2O_3 , raw material for high-purity chromium sulfate derivatives, CMP polishing slurries, nano-scale Cr powder synthesis.

5.4 Pigments, Ceramics & Glass

Thermal decomposition into Cr_2O_3 delivers stable green to emerald coloration. Ceramic glazes withstand 1200°C . Glass green colorant offsets yellow iron-impurity tint. Anti-rust industrial ink and coating formulations.

5.5 Metal Surface Passivation

Military-grade Cr^{3+} passivation. Dense film on steel, aluminum, zinc — $>96\text{h}$ salt spray resistance. Metalworking anti-rust inhibitor.

5.6 Catalysis & Advanced Materials

Oxidation, hydrogenation, polymerization catalyst/carrier (95%+ selectivity, 50+ recycles). Wood preservative. Oilfield: fracturing viscosity reducer, foam flooding additive. Laboratory-grade Cr standards.

5.7 New Energy — Flow Batteries

Ultra-pure Cr^{3+} electrolyte for Fe-Cr redox flow batteries. Coulombic efficiency $>96\%$, cycle life $>20,000$. NaCrO_2 cathode precursor for sodium-ion batteries.

6. MANUFACTURING

Line 1 — Atmospheric Co-Precipitation: Cost-effective bulk (GS-A, GS-E). Closed-cycle wet chemistry, zero hazardous waste, 100% water recycling.

Line 2 — Sealed Clean Crystallization: High-purity (GS-B, GS-C). Controlled-environment, superior impurity control ($\text{Fe} \leq 0.05\%$, Cr^{6+} ND).

7. PACKAGING, STORAGE & HANDLING

Standard Packaging	25 kg moisture-proof woven bag with inner PE liner
Bulk Options	500 kg bulk bag / 1,000 kg supersack (on request)
Storage	Cool ($5-35^{\circ}\text{C}$), dry, well-ventilated. Keep sealed. Hygroscopic.
Shelf Life	24 months in original unopened packaging
Handling PPE	Dust mask (N95/P95), nitrile gloves, safety goggles
Transport	Not classified as dangerous goods. Standard industrial chemical shipping.

8. REGULATORY

GHS: Skin Irrit. 2 (H315), Eye Irrit. 2A (H319), STOT SE 3 (H335). Signal: WARNING. Contains only Cr^{3+} — NO hexavalent chromium. EU REACH registered. China IECS listed. USA TSCA listed. Full SDS: BAS-SDS-001.