AdCol PolyPlast • Fortune 5, Sardarnagar West 1, Rajkot 360001, India
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Web: **www.AdCol.in** • Division: Masterbatches & Compounds

MB-W70-PE • Rutile White Masterbatch

High Opacity & Dispersion for Blown Film & Injection Moulding

GRADE: FILM & MOULDING

1. PRODUCT DESCRIPTION & CHARACTERISTICS

AdCol MB-W70-PE is a premium polyethylene-based white masterbatch containing 70% high-purity, chloride-process rutile titanium dioxide (TiO_2) with advanced organic surface coating. Formulated on high-torque co-rotating twin-screw extrusion systems, it delivers superior tinting strength, brilliant whiteness, and exceptional resistance to surface lacing and die-lip buildup during high-speed blown film extrusion.

2. TYPICAL PHYSICAL & RHEOLOGICAL PROPERTIES

Property / Parameter	Test Method	Unit	Typical Value	Tolerance
Active Pigment Content (TiO_2)	ASTM D5630 / ISO 3451-1	%	**70.0**	± 2.0%
Titanium Dioxide Crystal Type	X-Ray Diffraction	—	**Rutile (Chloride Grade)**	—
Carrier Polymer System	FTIR Identification	—	**Polyethylene (LLDPE / LDPE)**	—
Specific Gravity (Density @ 23°C)	ASTM D792 / ISO 1183	g/cm³	**2.05**	± 0.05
Melt Flow Index (190°C / 2.16 kg)	ASTM D1238 / ISO 1133	g/10 min	**12.0**	± 3.0
Moisture Content / Volatiles	ASTM D6980 (Karl Fischer)	%	**≤ 0.12**	Max
Filter Pressure Value (FPV @ 14 µm)	EN 13900-5	bar/g	**< 0.8**	Max
Bulk Density	ASTM D1895	g/cm³	**1.15**	± 0.05
Thermal Heat Stability	DIN 53772	°C	**280**	5 min dwell
Light Fastness Rating	ISO 105-B02	Blue Wool	**Grade 7 – 8**	Superior
Pellet Geometry & Count	Visual / Balance	pellets/g	**38 – 45 (Cylindrical)**	Uniform

Recommended Processing & Let-Down (LDR)

- **General Packaging Films:** 1.5% to 3.5% (High whiteness & yield)
- **Liquid & Milk Packaging:** 4.0% to 7.0% (Complete optical opacity)
- **Injection Moulded Parts:** 1.0% to 2.5% (Caps, closures, crates)
- **Compatible Base Resins:** LDPE, LLDPE, HDPE, and PP copolymers.

Regulatory, Packaging & Storage

- **Food Contact:** Compliant with US FDA 21 CFR 177.1520 & EU 10/2011.
- **Environmental:** Fully compliant with RoHS (2011/65/EU) & REACH SVHC.
- **Packaging:** 25 kg multi-wall craft moisture-barrier bags on pallets.
- **Shelf Life:** 12 months under dry, ambient storage (<35°C).

Notice: Typical properties are reported for guidance only and do not constitute absolute warranty limits. Converters are advised to conduct internal extrusion trials to ensure performance suitability for specific die configurations and end uses.

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MB-BLK40-AG • 40% Carbon Black Masterbatch

Agricultural Mulch Films & Drip Irrigation Lateral Pipe Grade

GRADE: PIPE & AGRI EXTRUSION

1. PRODUCT DESCRIPTION & CHARACTERISTICS

AdCol MB-BLK40-AG is an extrusion-grade polyethylene masterbatch carrying 40% fine-particle, high-surface-area furnace carbon black (P-type). Specifically engineered for micro-irrigation drip tubes, HDPE conduits, and UV-stabilized agricultural mulch films. Delivers exceptional macro-dispersion (ISO 18553), high thermal resistance, and uniform surface smoothness without screen-pack choking.

2. TYPICAL PHYSICAL & RHEOLOGICAL PROPERTIES

Property / Parameter	Test Method	Unit	Typical Value	Tolerance
Carbon Black Content	ASTM D1603 / ISO 6964	%	**40.0**	± 1.5%
Primary Carbon Particle Size	ASTM D3849 / TEM	nm	**20**	± 2.0
Carrier Polymer System	FTIR Identification	—	**Polyethylene (LLDPE / HDPE)**	—
Specific Gravity (Density @ 23°C)	ASTM D792 / ISO 1183	g/cm³	**1.18**	± 0.03
Melt Flow Index (190°C / 21.6 kg)	ASTM D1238 / ISO 1133	g/10 min	**22.0**	± 4.0
Melt Flow Index (190°C / 2.16 kg)	ASTM D1238 / ISO 1133	g/10 min	**0.80**	± 0.30
Moisture Content / Volatiles	ASTM D6980 (Moisture Analyzer)	%	**≤ 0.10**	Max
Filter Pressure Value (FPV @ 14 µm)	EN 13900-5	bar/g	**< 1.0**	Max
Dispersion Rating (Microtome)	ISO 18553	Grade	**≤ 2.0 (Grade A2 / B1)**	Max
Ash Content (Inorganics)	ASTM D5630	%	**≤ 0.10**	Max
Thermal Heat Stability	DIN 53772	°C	**280**	5 min dwell

Recommended Let-Down & Standards Compliance

- **Drip Lateral Pipes (IS 12786 / ISO 4427):** 5.0% to 6.25% LDR (delivers ≥ 2.0% – 2.5% active carbon black).
- **Agricultural Mulch Films (15–30 µm):** 4.0% to 6.0% LDR (>99.5% optical opacity for weed suppression).
- **HDPE Conduits & Utility Extrusion:** 2.0% to 4.0% LDR.

Handling, Storage & Packaging

- **Environmental:** RoHS (2011/65/EU) & REACH compliant; non-toxic.
- **Packaging:** 25 kg UV-stabilized heavy-duty laminated PP woven bags.
- **Hygroscopic Care:** Reseal bags immediately after opening to prevent moisture absorption; pre-drying recommended if stored long-term.

> **Notice:** Carbon black is inherently hygroscopic. Ensure proper dry storage and controlled extruder temperatures to prevent surface moisture voids in thin-gauge films.

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MB-ADD-SAB • High-Performance Slip & Anti-Block

Combined Functional Additive Pack for Blown & Cast Polyolefin Films

GRADE: ADDITIVE COMBI

1. PRODUCT DESCRIPTION & CHARACTERISTICS

AdCol MB-ADD-SAB is a synergistically formulated dual-action additive masterbatch containing high-purity refined erucamide (slip agent) and ultra-fine micronized natural silica (anti-blocking agent) dispersed in a virgin LLDPE matrix. It prevents film-layer fusion on winding reels, reduces kinetic and static coefficient of friction (COF), and ensures smooth line conveyance on high-speed bag-making equipment.

2. TYPICAL PHYSICAL & RHEOLOGICAL PROPERTIES

Property / Parameter	Test Method	Unit	Typical Value	Tolerance
Active Slip Agent (Refined Erucamide)	Internal GC Analysis	%	**5.0**	± 0.5%
Active Anti-Block (Micronized Silica)	ASTM D5630 (Ash Analysis)	%	**10.0**	± 0.8%
Anti-Block Particle Size (D50)	Laser Diffraction	µm	**4.5**	± 0.5
Carrier Polymer System	FTIR Identification	—	**Polyethylene (LLDPE)**	—
Specific Gravity (Density @ 23°C)	ASTM D792 / ISO 1183	g/cm³	**0.98**	± 0.02
Melt Flow Index (190°C / 2.16 kg)	ASTM D1238 / ISO 1133	g/10 min	**18.0**	± 4.0
Moisture Content / Volatiles	ASTM D6980	%	**≤ 0.15**	Max
Thermal Heat Stability	DIN 53772	°C	**260**	Standard
Target Film COF (Kinetic)	ASTM D1894 (after 24 hrs)	—	**< 0.20**	Dynamic
Optical Clarity / Haze Impact	ASTM D1003	%	**Minimal Haze (< 2%)**	Optimized
Pellet Geometry	Visual	—	**Lens / Cylindrical**	Uniform

Recommended Processing & Let-Down (LDR)

- **Monolayer Blown Film:** 1.0% to 2.0% LDR.
- **Multilayer Barrier Film (Skin Layer):** 1.5% to 3.0% LDR.
- **Lamination & Liner Films:** 0.8% to 1.5% LDR.
- **Processing Note:** Erucamide migration stabilizes within 24 to 48 hours after extrusion at ambient temperature.

Regulatory, Packaging & Storage

- **Food Packaging:** Approved under FDA 21 CFR 177.1520 & 178.3860.
- **RoHS & REACH:** Compliant with EU regulations; free from phthalates.
- **Packaging:** 25 kg moisture-proof PE-lined craft paper bags.
- **Storage:** Store below 30°C in dry conditions to prevent slip sintering.

Technical Note: Keep processing melt temperatures below 250°C to prevent oxidative degradation of fatty acid amides and preserve optical film clarity.

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CP-CA80-PE • Calcium Carbonate ($CaCO_3$) Compound

Micro-Coated Filler Compound for Blown Film & Injection Cost Optimization

GRADE: MODIFIER COMPOUND

1. PRODUCT DESCRIPTION & CHARACTERISTICS

AdCol CP-CA80-PE is an advanced mineral modifier compound containing 80% surface-treated, ultra-fine calcium carbonate ($CaCO_3$) dispersed in a specialty virgin LLDPE/PP carrier matrix. Engineered to lower formulation costs, increase thermal conductivity (reducing cooling cycle times), enhance anti-blocking characteristics, and improve dimensional stability and tensile modulus in polyolefin film and moulding applications.

2. TYPICAL PHYSICAL & RHEOLOGICAL PROPERTIES

Property / Parameter	Test Method	Unit	Typical Value	Tolerance
Calcium Carbonate Content ($CaCO_3$)	ASTM D5630 / ISO 3451-1	%	**80.0**	± 1.5%
$CaCO_3$ Average Particle Size (D50)	Sedigraph / Laser Particle Size	µm	**1.5**	± 0.2
Top Cut Particle Size (D98)	Laser Diffraction	µm	**≤ 6.0**	Max
Surface Coating	Stearic Acid Treated	—	**Hydrophobic Monolayer**	—
Carrier Polymer System	FTIR Identification	—	**Virgin LLDPE / PE Matrix**	—
Specific Gravity (Density @ 23°C)	ASTM D792 / ISO 1183	g/cm³	**1.92**	± 0.04
Melt Flow Index (190°C / 2.16 kg)	ASTM D1238 / ISO 1133	g/10 min	**4.5**	± 1.5
Moisture Content / Volatiles	ASTM D6980 (Moisture Analyzer)	%	**≤ 0.08**	Max
Whiteness Index (CIE L* / Whiteness)	Spectrophotometer	%	**≥ 95.0**	Min
Dispersion & Mesh Retention	DIN 53770 (45 µm screen)	%	**≤ 0.01**	Zero Grits
Thermal Heat Stability	DIN 53772	°C	**300**	Superior

Recommended Addition Levels & Applications

- **HDPE Shopping & Garbage Bags:** 15% to 45% (Improves dart impact & stiffness).
- **LLDPE/LDPE General Packaging:** 8% to 25% (Improves heat sealing & yield).
- **Injection Moulding / Housewares:** 10% to 35% (Accelerates mould cycle cooling).
- **PP Woven Sacks & Raffia Tapes:** 3% to 12% (Prevents splitting & slippage).

Regulatory, Packaging & Plant Support

- **Compliance:** Complies with FDA 21 CFR 177.1520 and RoHS non-heavy metal norms.
- **Packaging:** 25 kg moisture-proof PP woven sacks with internal poly liner.
- **Technical Support:** Laboratory extrusion trials and screw torque matching available upon request.

Recommendation: When loading above 25% on blown film lines, adjust extruder temperature profile slightly lower (+5°C to 10°C on feed zone, lower on die) to harness the improved thermal conductivity of calcium carbonate.