

Metal Shield

Advanced Nano-Based Clear Coating for Superior Metal Protection

FlameOFF Metal Shield is a durable and long-lasting nano-based clear coating designed to protect all metal surfaces from various destructive forces. Our metal coating provides superior resistance to rust, moisture, corrosion, salt spray, acid rain, UV damage, oxidation, galvanic corrosion, and animal & bird waste damage. FlameOFF Metal Shield is peel and flake resistant, ensuring a long-lasting barrier against the elements.

APPLICATIONS / SURFACES

Ferrous Metals: Iron, steel, stainless steel, galvanized steel
Non-Ferrous Metals: Aluminum, copper, bronze (raw, powder coated, painted or primed)

CHARACTERISTICS

Appearance / Finish	Light Yellow / Clear
Odor / Base Type	Mild Fruity / Solvent
Flash Point	16.7°C (62.1°F)
VOC / Weight	> 100 g/L / 1 kg/L
Coverage	600-800 sq.ft./gal
Expected Wear	5+ years

SURFACE PREPARATION

Test Area: Perform a small test on an inconspicuous area with FlameOFF Metal Shield to ensure good adhesion and the desired result is achieved before full application.

ALUMINUM, COPPER, BRASS, BRONZE & STAINLESS STEEL

- Thoroughly clean entire surface to ensure a good bond
- Clean oil and grease using FlameOFF Bio Clean Industrial
- Rinse with fresh water and dry completely
- Double-check with white rag/solvent test - rag must remain white
- Apply **one coat** per application instructions

GALVANIZED STEEL

- New galvanized steel off-gasses for several months after plating
- Allow **6 months** for complete off-gassing
- If age unknown, test small area for bubbles/blistering (~7 days)
- Clean with FlameOFF Bio Clean Industrial, rinse and dry
- Verify with white rag/solvent test, apply **one coat**

POWDER COATED METALS

- Examine powder coating for cracks or damage
- Have damaged areas re-coated or primed with matching paint
- Clean surface with FlameOFF Bio Clean Industrial
- **Do not use solvents** - they damage powder coating
- Rinse with fresh water, dry completely, apply **one coat**

OLD IRON & STEEL WITH EXISTING PAINT/PRIMER

- Inspect existing primer/paint for good adhesion
- If peeling/chipping, abrade to solid base or bare steel
- Sandblast (SSPC-SP-6) or sand with 600 grit or lower
- Re-paint as needed and allow to dry/cure completely
- Wipe with FlameOFF Bio Clean Industrial, apply **single coat**

SURFACE PREPARATION (CONTINUED)

NEW IRON & STEEL

- Ensure surface is free of rust, scale, oil, and grease
- Wipe with white rag/solvent to check for remaining oil/grease
- For hot rolled steel: sandblast or grind off **100% of slag**
- Prime bare metal with quality rust/corrosion primer
- Once primer dried, apply **two coats** of Metal Shield
- Follow re-application time set by primer manufacturer
- If window passed: abrade with min 600 grit sandpaper
- **Unprimed:** Apply wet over tack, max 15 min between coats

APPLICATION METHODS

Environmental Requirements: Temperature 45°F - 105°F (7-41°C) | Relative Humidity under 90% | No rain for minimum 12 hours after application

GENERAL APPLICATION

For best finish, FlameOFF Metal Shield is ideally **sprayed on**. When spraying, cover adjacent surfaces to avoid drips or accidental coating.

Alternative methods (when spraying not possible):

- Fine bristle brush
- High density ultra-smooth foam roller
- Dipping method

Note: Alternate methods may not yield same coverage and smooth finish as spraying.

SPRAY APPLICATION

- Always test in an inconspicuous location first
- Shake contents thoroughly to re-suspend nanoparticles
- Re-shake every 15-20 minutes during application
- Use HVLP spray gun with 1.0-1.3 size tip
- Set pressure at approximately 25-30 psi
- Ensure surface is dry and free of dust before starting

Wind Conditions: High wind can affect finish quality by disrupting spray pattern and contributing to contamination with blowing dirt. Take necessary precautions against natural elements.

PROCESSING PROPERTIES

Touch Dry	2-3 hours
Dry Through	3-5 hours
Recoat Interval	10-20 minutes
Walk On Time	Min 8-12 hours
Moisture Exposure	24 hours
Full Cure	7 Days

Under standard lab conditions (77°F / 25°C)

TECHNICAL DATA

VOC (ASTM D2369)	<0.83 lb/gal
Theoretical Coverage	640-800 ft ² /gal
Specific Gravity	0.88 kg/liter
Flash Point (Pensky)	15°F (-9°C)
Shelf Life	12-24 months
Operating Temp	-200°F to 350°F

PERFORMANCE TESTING (ASTM STANDARDS)

TEST	METHOD	RESULT
Abrasion Resistance (CS-17, 1000 cycles)	ASTM 4060	23 mg Loss

CLEAN UP

- Clean tools and equipment with **acetone**
- Flush thoroughly immediately after application
- Clean before product dries

Important: If coating dries on tools, they will not come clean with acetone or any other solvent.

CARE & MAINTENANCE

- Use damp rag for routine cleaning
- Avoid abrasive cleansers or scouring pads
- If area is damaged: sand lightly with 600 grit sandpaper and reapply Metal Shield
- If substrate damaged: make repairs first before reapplying coating

SAFETY CAUTIONS

Respiratory & Ventilation

- Use OSHA approved 1910.134 and ANSI Z88.2 respiratory protection
- Fresh air and exhaust required in work area to prevent inhaling
- If inhaled, move to fresh air immediately; call physician if any physical difficulties occur
- Always ensure excessive ventilation when working in enclosed areas

Skin & Eye Protection

- Wear butyl-rubber gloves and skin protection to avoid contact
- If coating contacts skin, wash thoroughly with soap and water
- Use chemical safety goggles or splash shields
- Never wear contact lenses without eye protection
- If eye contact: flush with water for 15 minutes, seek medical attention
- If swallowed: rinse mouth thoroughly, obtain immediate medical attention

STORAGE & SHELF LIFE

- Store in cool, dry environment away from direct sunlight and heat
- Keep container tightly closed when not in use
- **Shelf Life:** 12-24 months unopened at 77°F / 25°C
- **Do not freeze.** Protect from extreme temperatures

REGULATORY INFORMATION

DOT Classification: Class 3 Flammable Liquid

UN1263, Paint, 3, PG II

HMIS Ratings:

Health: 1 | Flammability: 3 | Reactivity: 0

FlameOFF Coatings

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Sold in 5-gallon containers. Contact technical sales for large volume inquiries.

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