Technical Evaluation & Aviation Application Report: Master's Touch MT-30

Document Reference: MT-30-AERO-EVAL-2026

Manufacturer / Entity: The Master's Touch Global

CAGE Code: 9YY84

Product: Master's Touch MT-30 High-Performance Hybrid Sealant & Adhesive

Baseline Certifications & Qualifications: NAVSEA Approved | NSN: 8030-01-443-7388 | ASTM C920 Type S, Grade NS, Class 25

1. Executive Summary

Master's Touch MT-30 is a high-performance, silane-functional hybrid sealant and adhesive tested and approved by the **Naval Sea Systems Command (NAVSEA)** and actively deployed across U.S. Navy shipyards (NSN: 8030-01-443-7388). Originally engineered for marine structural joints, corrosion protection, and Passive Countermeasures System (PCMS) tile adhesion, this report evaluates the engineering suitability of MT-30 for **military, defense, and commercial aviation applications**.

MT-30 provides a direct silane chemical bond on aerospace-grade aluminum (6061-T6 / 7075-T6), 100% solids (zero shrinkage), Class A fire performance, and high elongation (600%). These parameters offer critical performance advantages over traditional polyurethane and polysulfide sealants in aircraft maintenance, repair, and overhaul (MRO).

2. Microscopic Interface & Chemical Bonding Mechanism

Traditional aerospace polyurethanes rely on mechanical interlocking achieved through multi-stage wash-primers. In high-altitude environments characterized by extreme thermal swings and rapid dew-point shifts, wash-primers suffer from micro-delamination and moisture trapping.

Standard Aerospace Polyurethane ---> [Wash-Primer Layer] ---> [Substrate] (Risk: Micro-Delamination & Moisture Trapping) [MT-30 Silane-Hybrid Technology] ---> [6061-T6 / 7075-T6 Aluminum] (Direct Molecular Bond / Primeless

- **Primeless Adhesion:** MT-30 establishes direct covalent silane bonds at the molecular level with aerospace metal substrates (6061-T6 Aluminum, marine alloys) and composite polymers without primer application.

- **Zero Wait Time:** Eliminates wait times associated with wash-primer flash-off, accelerating structural assembly and aircraft Turnaround Time (TAT).

- **High Molecular Stability:** Resists wash-primer degradation and environmental weathering, preventing crevice corrosion on exterior airframe skins.

3. Targeted Aircraft Application Zones

A. Advanced Avionics & Radar Enclosure Sealing

- **Application:** Radar domes (randoms), avionics compartments, and instrument enclosures.

- **Benefit:** Cures to a high-density, solvent-free seal with zero shrinkage, protecting sensitive electronics against environmental moisture and dust without gap formation.

B. Cockpit & Flight Deck Canopy Sealing

- **Application:** Cockpit canopy framing, windshield perimeter joints, and flight deck access doors.

- **Benefit:** Resists intense high-altitude UV radiation (10,000 Hours QUV ASTM G154) and maintains 600% elongation to absorb vibration and differential cabin pressure.

C. Wing-to-Fuselage & Aerodynamic Fairings

- **Application:** Wing-to-body fairings, control surface gap sealing, and exterior access panels.

- **Benefit:** Primeless adhesion to aluminum and composite substrates creates smooth, high-adhesion seams that maintain aerodynamic integrity and prevent micro-delamination.

D. Subfloor, Wet Areas & Cargo Enclosures

- **Application:** Galley floors, lavatory subfloors, and cargo hold moisture barriers.

- **Benefit:** Cures directly on damp/wet substrates and carries an **ASTM E84 Class A Fire & Smoke Rating** (Flame Spread: 0, Smoke Developed: 0), meeting strict airframe interior safety requirements.

4. Physical & Mechanical Properties Matrix

Property Parameter	Tested Result	Standard / Method	Aviation Suitability Evaluation
Viscosity	2,000,000 cps (Spindle 7, 4 rpm)	MT Test Method 2000	Non-slump, gun-grade consistency for overhead flight deck / cargo hold seams.
Density	13.5 lbs./gal	ASTM D1475	Balanced elastomeric weight profile for structural joint sealing.
Hardness	27 (Shore A)	ASTM C661	Flexible formulation capable of dampening airframe engine vibration.
100% Modulus	0.6 MPa	ASTM D412	Accommodates cyclic structural deflection during high-G maneuvers.
Tensile Strength	145 PSI	ASTM D412	High cohesion under high aerodynamic shear forces.
Elongation at Break	600%	ASTM D412	High flex capacity under airframe flex and thermal shock.
Flame & Smoke Spread	Class A (Flame: 0, Smoke: 0)	ASTM E84	Zero-smoke safety profile for interior cabin and bulkhead pass-throughs.
VOC Content	17 g/L (Isocyanate & Solvent-Free)	ASTM D2369	Safe, low-odor application in enclosed aircraft maintenance hangars.
QUV Accelerated Weathering	Pass (10,000 Hours)	ASTM G154	High solar UV stability at high flight altitudes.

5. Compliance & Certification Profile

- **NAVSEA Approved & Fleet Deployed** (NSN 8030-01-443-7388)
- **ASTM C920**, Type S, Grade NS, Class 25, Uses NT, T, M, G, A & O
- **Federal Specification TT-S-00230-C**, Type II, Class B
- **ASTM E84** Class A Fire Rating
- **CARB & SCAQMD** Environmental VOC Compliant

6. Strategic Conclusion

Master's Touch MT-30 demonstrates strong engineering adaptability for non-fuel-tank aviation applications. Its NAVSEA-verified primeless silane bonding, zero shrinkage, Class A fire performance [cite: 3], and high elongation [cite: 3] make it a reliable sealant for radome enclosures, wing fairings, wiring bulkhead pass-throughs, and cabin subfloors.

