Technical Evaluation & Executive Summary Report: MT-30 Military Equipment & Armored Vehicle Sealing

1. Executive Summary

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

National Stock Number (NSN): 8030-01-443-7388

Color Spec: Navy Gray

Primary Substrate Compatibility:

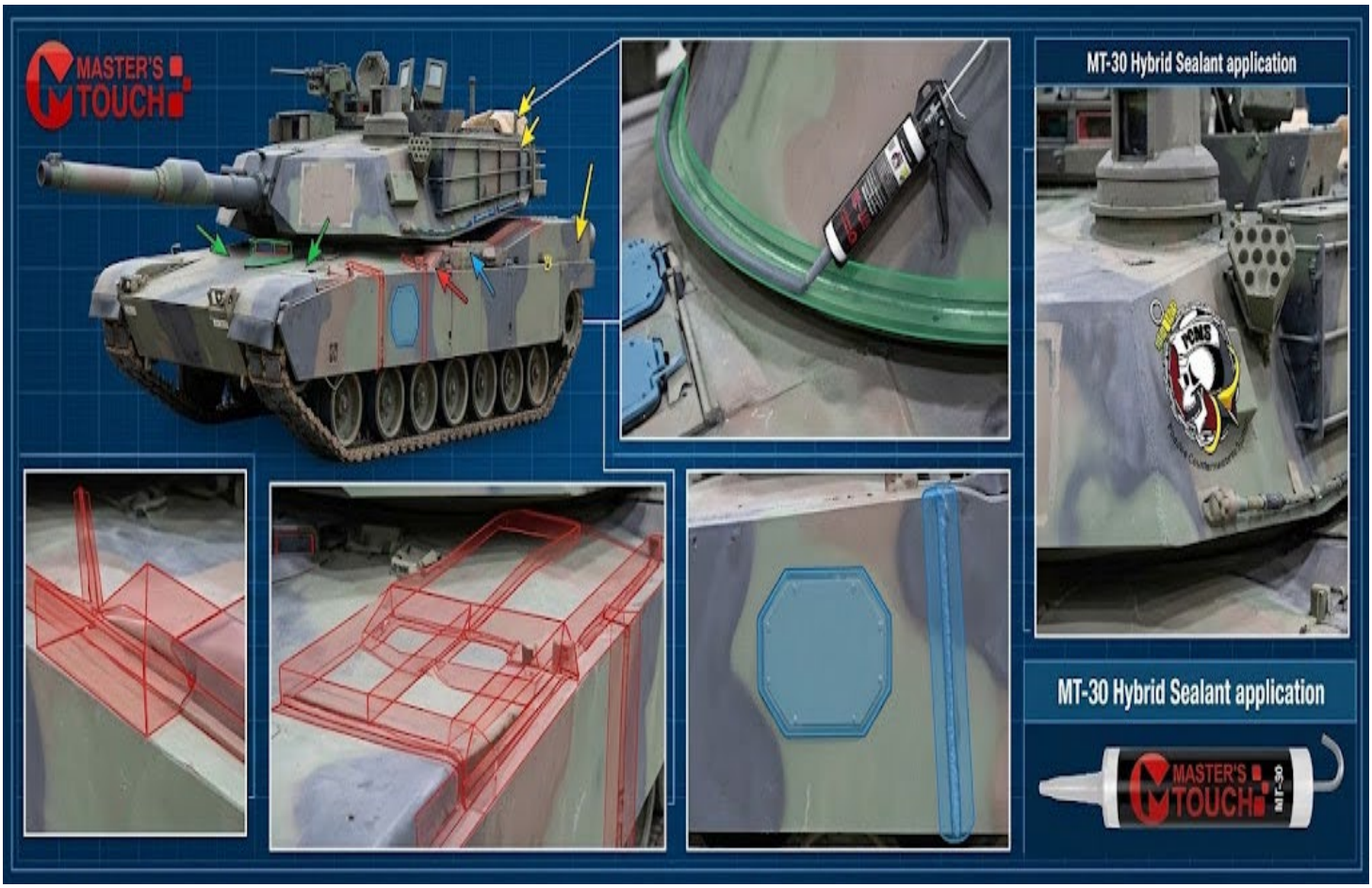
Passive Countermeasures System (PCMS) Tiles, Armored Steel, 6061-T6 Aluminum, Composite Armor, Elastomeric Membranes

This technical evaluation report details the operational deployment and application profile of **Master's Touch MT-30** across military land systems, including heavy armored fighting vehicles (e.g., M1 Abrams Main Battle Tank) and light tactical vehicles (e.g., High Mobility Multipurpose Wheeled Vehicle / HMMWV).

Tested and approved by the **Naval Sea Systems Command (NAVSEA)**, MT-30 is officially rated as the **best caulking material in its class**. Thanks to its superior environmental resilience, primeless direct silane bonding, and zero-slump application profile, MT-30 has been successfully supplied and deployed across **all U.S. Navy shipyards nationwide** and integrated into defense equipment maintenance programs.

2. Technical Visualization: M1 Abrams Application Breakdown

Below is a schematic overview highlighting critical joint, seam, and interface application areas for MT-30 on the M1 Main Battle Tank platform:



Key Tank Application Callouts:

1. **Turret Ring & Hull Interface Sealing:** Protects sensitive bearings, optics, and electronics against high-pressure water ingress, chemical washdowns, and mud accumulation.

2. **Armor Plate & PCMS Tile Seams:** Ensures 100% moisture-tight seal between composite armor modules or Passive Countermeasures System (PCMS) tiles without shrinking or cracking.

3. **Engine Deck & Exhaust Housings:** Withstands severe vibration and high service temperatures up to 220°F (intermittent to 270°F).

4. **Underbody NBC / Fording Seals:** Maintains continuous air and watertight integrity along belly plates and access hatches during deep-water fording and hazardous environment operations.

3. Light Tactical Vehicle (HMMWV / Humvee) Integration Profile

On light tactical wheeled vehicles such as the HMMWV, MT-30 provides crucial weatherproofing, sound-dampening, and anti-corrosion sealing:

- **Cab & Roof Seam Sealing:** Prevents water leakage across overhead composite cab panels and aluminum roof joints.
- **Windshield & Door Frame Weather-sealing:** Flexible $\pm 50\%$ joint movement capability absorbs chassis twist and frame flex during extreme off-road maneuvers.
- **Floor Pan & Wheel Well Gaskets:** Protects floor-pan armor inserts and underbody seams from corrosion caused by salt, mud, and harsh field contaminants.

4. Chemical Bonding Mechanism & Operational Advantages

Traditional polyurethane caulking compounds require wash-primers and mechanical interlocking, making them prone to micro-delamination and joint failure under thermal shock or dew point shifts[cite: 3].

MT-30 utilizes advanced **Silane-Hybrid Technology** to establish direct molecular bonds directly to metal and alloy substrates:

- **Primeless Adhesion:** Adheres directly to treated/untreated military-grade aluminum (6061-T6) and armored steel plates with zero wait time [cite: 3].
- **Damp & Wet Substrate Curing:** Immediately rain-ready and cured underwater or on wet substrates without wash-off or loss of adhesion.
- **Non-Slump Vertical & Overhead Versatility:** Ideal gun-grade consistency allows effortless application on vertical turret skirts and overhead hull plates.
- **Zero Shrinkage & High Durability:** 100% solids, solvent-free formulation tested to 10,000 hours of QUV accelerated weathering (ASTM G154).

5. Physical & Mechanical Performance Specifications

Property	Standard / Test Method	Performance Result
Viscosity	MT Test Method	2,000,000 cps (Spindle 7, 4 rpm)
Density	ASTM D1475	13.5 lbs./gal
Hardness	ASTM C661	27 (Shore A)
Tensile Strength	ASTM D412	145 PSI
Elongation at Break	ASTM D412	600%
Joint Movement	ASTM C920	$\pm 50\%$
Flame Spread / Smoke	ASTM E84	Class A (0 Flame / 0 Smoke)
Service Temperature	MT Test Method	-75°F to 220°F (Intermittent to 270°F)

6. Government & Military Compliance

- **NAVSEA Approved & Fleet Deployed**
- **NSN 8030-01-443-7388**

- **ASTM C920**, Type S, Grade NS, Class 25, Uses NT, T, M, G, A & O
- **TT-S-00230-C**, Type II, Class B
- **ASTM E84**, Class A Fire Rating
- **CARB & SCAQMD Compliant** (17 g/L VOC)

https://www.masterstouchusa.com/caulking-sealer-mt-30