

TRI MARINE GREASE®

Submarine hanger areas have actuated parts, doors, hatches, etc., that must be adequately lubricated to function correctly and extend service life. Dry deck shelter hatches need lubrication on all internal gears and locking ring threads. Texas Research Institute Austin, Inc. (TRI Austin) has developed an innovative grease approach utilizing fluorohydrocarbon base oil in conjunction with a thixotropic filler and various anti-corrosion additives.

This diver-safe optimized formulation has performed very well in both field and lab testing. It is resistant to water washout, prevents corrosion both actively and passively, and has passed the NAVSEA P-9290 certification for off-gassing of volatile compounds. The new grease can be applied by hand, grease gun, or via grease lines. Reduced costs will be realized with the new grease through improved durability, reduced need for component repair, and minimal application time.



TRI Marine Grease®

A Product of TRI Applied Tech

- Resistant to washout
- Prevents corrosion
- Non off-gassing
- Improved durability
- Reduces repair costs
- Reduced application times

MATERIAL SPECIFICATION AND QUALIFICATION TESTING



STANDARD TEST METHOD	TEST	PURPOSE OF TEST	TEST RESULTS
ASTM-D-1403	Small Scale Cone Penetration	¼ Scale Penetration, Unworked and Worked	Unworked – 244 Worked – 254
ASTM-D-2595	Evaporation Loss @ 22 hours	Measurement of permanence	0.70%
ASTM-D-942	Pressure Vessel Oxidation @ 100 hours	Measure the net change in pressure resulting from consumption of oxygen by oxidation and gain in pressure due to formation of volatile oxidation by-products	2.0 psi drop
ASTM-D-2266	Four Ball Wear of Grease	Used to determine the relative wear preventing properties of greases under the test conditions	0.56 mm
ASTM-D-2596	Load Wear Index of Grease	Determination of the load-carrying properties of lubricating greases.	95.71
ASTM-D-1478	Low Temperature Torque	Determination of the starting and running torques at low temperatures (below -20°C (0°F)).	Starting Torque 9024 g-cm 1 Hr Running Torque 732 g-cm
FTM-5309	Copper Corrosion of Grease	Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test	Exposed 3B Immersed 4A
FTM-321	Oil Separation	Wire Cone Method	4.21%
FTM-5415	Resistance of Grease to Aqueous Solutions	1 week exposed to water and water/ethanol	0% disintegration
FTM-3005	Dirt Count of Greases	The number of foreign particles between 25 and 75 microns per milliliter of sample, and particles greater than 75 microns per milliliter of sample.	25 - 74 µ – 38/cc +75 µ – 0/cc
ASTM G72	Autogenous Ignition Temperature in Oxygen-Enriched Environment	To establish the average autogenous ignition temperature (AIT) in a 99.5% mol O2 environment.	247°C +/- 4°C
ASTM D4809	Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter	To establish the average heat of combustion in a sealed environment with an ignition source .	2,003 +/- 9cal/g
ASTM D2515	Test Material with Liquid Oxygen Impact Sensitivity Threshold (Pass-Fail Techniques)	To establish the the liquid oxygen (LOX) impact sensitivity to material degradation over 20 test runs.	Passed all 20 test runs with no LOX reactivity
ASTM G74	Test Material for Ignition Sensativity of Nonmetallic Materials and Components by Gaseous Fluid Impact	To establish the material's 50% reaction pressure for gaseous fluid impact sensitivity (GFIS) over a varying range of pressures (290psig-1450psig).	50% reaction pressure is 635 psig
ASTM G125	Test Material for Measuring Liquid and Solid Material Fire Limits in Gaseous Oxidants	To establish the minimum percent O2 index (OI) threshold for the material to ignite with a secondary source and burn.	No Burn Threshold is 37% O2
TGA	Thermogravimetic Analysis	To establish a start and end point temperature from neat material state to melting point.	MP start at 117° C, full MP at 137° C



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TO LEARN IF TRI MARINE GREASE® CAN HELP YOU WITH YOUR APPLICATION, CONTACT:

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