ADVANCED ENGINEERING Technical Data Sheet



HALAR®

Meets UL 2024

- VW-1, FAR 25 Approved
- Expands Up To 150%
- Resists Gasoline And Engine Chemicals
- Cut And Abrasion Resistant
- Easy To Install



Material HT

Ethylene-chlorotrifluoroethylene

Grade HTN

Monofilament Diameter .011"

Drawing Number TF001HT-WD



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| | | | | Put-Ups | | | |
|---------|---------|----------|---------|---------|-------|-----------|------|
| Nominal | Part | Expansio | n Range | Bulk | Shop | Available | Lbs/ |
| Size | # | Min | Max | Spool | Spool | Colors | 100′ |
| 1/8″ | HTN0.13 | 3/32″ | 1/4″ | 1,000′ | 225′ | 2 | 0.25 |
| 1/4″ | HTN0.25 | 1/8″ | 7/16″ | 1,000′ | 200′ | 2 | 0.38 |
| 3/8″ | HTN0.38 | 3/16″ | 5/8″ | 500′ | 125′ | 2 | 0.86 |
| 1/2″ | HTN0.50 | 1/4″ | 3/4″ | 500′ | 100′ | 2 | 1.10 |
| 3/4″ | HTN0.75 | 1/2″ | 1 1/4″ | 250′ | 75′ | 2 | 1.70 |
| 1″ | HTN1.00 | 5/8″ | 1 5/8″ | 250′ | 65′ | 2 | 2.20 |
| 1 1/4″ | HTN1.25 | 3/4″ | 1 3/4″ | 250′ | 50′ | 2 | 2.60 |
| 1 3/4″ | HTN1.75 | 1 1/4″ | 2 3/4" | 200′ | 30′ | 2 | 4.40 |
| 2″ | HTN2.00 | 1 1/2″ | 3 1/2″ | 200′ | 50′ | 2 | 4.60 |

Very Low Outgassing, Self-Extinguishing UL-2024 Plenum Rated Sleeving

Colors Available: 2 = TB & TW.

HALAR[®] (HT) self-extinguishing sleeving is used where flammability, high temperature endurance and low outgassing are primary concerns. HT is braided from 11 mil ethylene chlorotriflouroethylene (ECTFE) copolymer monofilament.

Because of its low flame spread and smoke generation properties, HT has received UL 2024 and NFPA 262 plenum listings, UL flame resistance rating of VW-1 and exceeds automotive industry requirements of FMVSS 302, as well as aviation industry requirements of FAR 25.

HT resists a wide range of corrosive chemicals and organic solvents, including strong acids, chlorine and aqueous caustics. HALAR® ECTFE also maintains useful properties on exposure to Cobalt 60 radiation at doses up to 200 megarads.

Halar's low outgassing, as well as its heat, chemical and radiation properties, make it ideal for use as a component in technologically advanced applications.

Colors Available:



Black with White Tracer (TB) and White with Black Tracer (TW).



Nominal Diameter

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Abrasion Resistance Medium

Abrasion Test Machine Taber 5150

Abrasion Test Wheel
Calibrase H-18

Abrasion Test Load **500g**

Room Temperature 71°F

Humidity **58%**

Material Destroyed
600 Test Cycles

Pre-Test Weight 6,354.9 mg

Post-Test Weight 5,922.8 mg

Test End Loss Of Mass Point Of Destruction **432.1 mg**



Rating_____FAR 25, VW-1

Chemical Resistance

| 1=No E |
|----------|
| 2=Little |
| 0 444- |

esistance

| 3=Affected | | | | | |
|-------------------------------------|---|--|--|--|--|
| Aromatic Solvents1 | | | | | |
| Aliphatic Solvents | | | | | |
| Chlorinated Solvents | | | | | |
| Weak Bases1 | l | | | | |
| Salts1 | l | | | | |
| Strong Bases1 | 1 | | | | |
| Salt Water 0-S-19261 | l | | | | |
| Hydraulic Fluid <i>MIL-H-5606</i> 1 | l | | | | |
| Lube Oil <i>MIL-L-7808</i> 1 | l | | | | |
| De-Icing Fluid MIL-A-82431 | l | | | | |
| Strong Acids1 | l | | | | |
| Strong Oxidants1 | l | | | | |
| Esters/Keytones2 | 2 | | | | |
| UV Light1 | l | | | | |
| Petroleum1 | l | | | | |
| Fungus ASTM G-211 | l | | | | |
| Halogen Free Yes | 3 | | | | |
| RoHSYes | 3 | | | | |
| SVHC | | | | | |
| | | | | | |



Melt Point ASTM D-2117 000° 482°F (250°C) 500° Maximum Continuous Mil-I-23053 500° 302°F (150°C) 200° 100° 0°

Minimum Continuous -103°F (-75°C)⁻

PROPERTIES

| Monofilament Diameter_ ASTM D-204 | .011 |
|--|--------------------|
| Flammability Rating FMVSS-302 Approved | FAR 25, VW-1 |
| Recommended Cutting_ | Hot Knife |
| Colors | 2 |
| Wall Thickness | .028 |
| Tensile Strength (Yarn) ASTM D-2256 Lbs | 4.3 |
| Specific Gravity ASTM D- | 7 <i>92</i> 1.68 |
| Moisture Absorption % ASTM D-570 | .02 |
| Hard Vacuum Data ASTM | E-595 at 10-5 torr |
| TML | .18 |
| CVCM | .02 |
| WVR | 0 |
| Smoke D-Max ASTM E-662 | 94 |
| Outgassing | Low |
| Oxygen Index ASTM D-2863 | 64 |

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PERATURES

TEM

ERATING

100

-200*