

PYROGEL

EXTENDED-RANGE, HIGH- AND LOW-TEMPERATURE ULTRASONIC COUPLANTS

GENERAL DESCRIPTION

Pyrogel couplants offers the broadest temperature range for thickness gauging, flow metering, acoustic emissions testing, and flaw detection. They contain no polymers and resists drying, making them an excellent choice for long term flow metering applications.

OPERATIONAL TEMPERATURE RANGE*

Pyrogel 7 Thickness Gauging: -50 to 730°F (-45 to 388°C)
 Flaw Detection: 0 to 600°F (-18 to 315°C)

Pyrogel 100 Thickness Gauging: -50 to 805°F (-45 to 429°C)
 Flaw Detection: 0 to 600°F (-18 to 315°C)

NOTE: In areas where flame or other ignition source may be present, or in applications where vapors may be confined in an enclosed or semi-enclosed area, these products should not be used above the flash point temperature.

BENEFITS

- Broadest operating range
- Resists drying, allowing long-term coupling without reapplication
- Good choice for long-term flow metering
- Long-term corrosion inhibition characteristics, suitable for most metals
- Pyrogel 100 is great for vertical and overhead surfaces

METHOD OF APPLICATION

In most applications, the transducer is best coupled with the thinnest layer of couplant possible. Apply a small bead of couplant directly to the center of the transducer face and push the transducer down onto the test surface with a uniform force so the couplant spreads out evenly towards the edge of the transducer.

In high-temperature applications it is recommended that extra care is taken to use just enough couplant to perform the test procedure as excess couplant may increase vapors which can pose a flash hazard.

PROPERTIES* (at ambient temperature)**Pyrogel 7**

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|---------------------------------------|-----------------------------------|
| Viscosity | ~620 cps (Brookfield V at 30 rpm) |
| Velocity | 1.20 ± 0.05 mm/μsec |
| Acoustic Impedance | 1.35 ± 0.05 MRayls |
| Total Halogens | <250 ppm |
| Sulfur | <50 ppm |
| Flash Point ¹ | 631°F, 333°C (Cleveland Open Cup) |
| Autoignition Temperature ² | 822°F, 439°C |

Pyrogel 100

| | |
|---------------------------------------|--|
| Viscosity | ~4,000,000 cps (Brookfield LV #5 at 0.3 rpm) |
| Velocity | 1.20 ± 0.05 mm/μsec |
| Acoustic Impedance | 1.35 ± 0.05 MRayls |
| Total Halogens | <250 ppm |
| Sulfur | <50 ppm |
| Flash Point ¹ | 559°F, 293°C (Cleveland Open Cup) |
| Autoignition Temperature ² | 894°F, 479°C |

¹ Flash point temperature determined in accordance with ASTM Method D92 using the Cleveland Open Cup method. In areas where vapors may be confined in an enclosed or semi- enclosed area, the actual flash point of this product may be lower than recorded.

² Autoignition temperature determined in accordance with ASTM Method E659.

EXTREME-TEMPERATURE GUIDELINES

Before use, make sure that the surface temperature of the test piece does not exceed the maximum specified temperature for the application and environmental conditions.

At high temperatures, couplants evaporate relatively quickly; more couplant may be required near the upper end of the operating temperature range to compensate for evaporation. Care should be taken to avoid using excess couplant as this may lead to increased vapors which can pose a flash hazard.

The flash point of a material is the lowest temperature at which it can vaporize to form an ignitable mixture in air. At the flash point temperature, the material vapor will flash only if an ignition source is present and the vapor may cease to burn when the ignition source is removed. In areas where vapors may be confined in an enclosed or semi-enclosed area, the flash point of a material may be lower than the recorded value.

The autoignition temperature of a material is the lowest temperature at which it will spontaneously ignite

in a normal atmosphere without an external source of ignition, such as a flame or spark. Environmental or atmospheric factors will affect auto-ignition temperature; therefore it is important to observe a suitable safety margin in conjunction with auto-ignition temperature.

Smoke develops as the couplant begins to decompose due to heat exposure. Smoke is not an indication the couplant is not working, but it does indicate the effective coupling time is limited. Smoke produces vapors which may lower the couplant flash point, particularly in enclosed or semi-enclosed areas.

A couplant's upper temperature range for short duration thickness gauging is higher than when used for flaw detection.

REMOVAL

Remove excess couplant from transducers and other surfaces by wiping with disposable rags or paper towels, being careful to protect skin from hot surfaces.

Do not use solvent-based cleaners on hot surfaces!

CORROSION INHIBITION

Pyrogel couplants contain a corrosion inhibitor for ferrous metals with a relative effectiveness rating of 100. Ferrous Corrosion Characteristics Chart available at www.magnaflux.com.

PACKAGING

Pyrogel 7

1 gal / 3.78 L Cubitainer

Pyrogel 100

4 fl oz / 118 mL Tube

1 gal / 3.78 L Cubitainer

SAFETY

Extra care should be taken when operating with couplants in high-temperature applications; refer to Extreme-Temperature Guidelines for pertinent information regarding couplant behavior and properties in high-temperature operations.

Pyrogel couplants do not contain perfluorocarbons (PFCs) or fluorinated material, which can cause adverse health effects at high temperatures. "Polymer fume fever" is not an operator hazard.

Use all recommended Personal Protective Equipment when handling and using Pyrogel. Please refer to the Material Safety Data Sheet for additional information.