



TEMPRITE® ENGINEERED MATERIALS by Lubrizol

Fire-Resistant Applications

When thermoplastic materials are selected, thought should be given to the fire performance characteristics of the material. Evaluating fire performance involves consideration of many factors, including:

- Ignition resistance
- Heat of combustion
- Limiting oxygen index
- Flame spread resistance
- Smoke generation resistance

Without the help of flame retardants and smoke inhibitors, Lubrizol CPVC inherently exhibits outstanding fire performance characteristics in terms of limited flame propagation and low smoke generation.

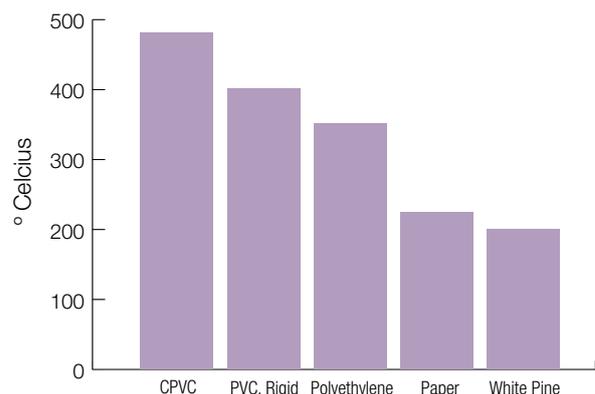
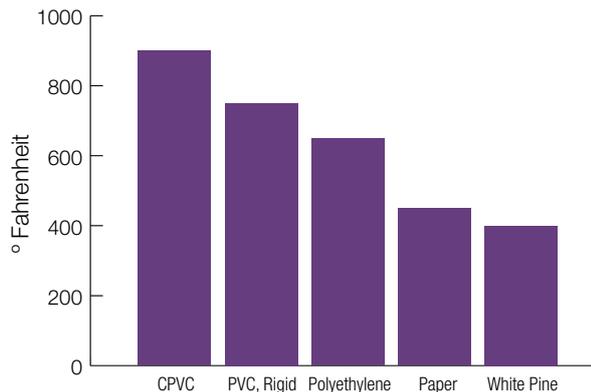
When coupled with its excellent balance of mechanical strength, low thermal conductivity and outstanding corrosion resistance, Lubrizol CPVC provides excellent safety and performance in a wide range of applications.

Ignition Resistance

Lubrizol CPVC has a flash ignition temperature of 900°F (482°C), which is the lowest temperature at which sufficient combustible gas is evolved to be ignited by a small external flame. Many other ordinary combustibles, such as wood, ignite at 500°F (260°C) or less.

Material	°C	°F
CPVC	482	900
PVC, Rigid	399	750
Polyethylene	343	650
Paper	232	450
White Pine	204	400

Material Comparison: Flash Ignition Temperature

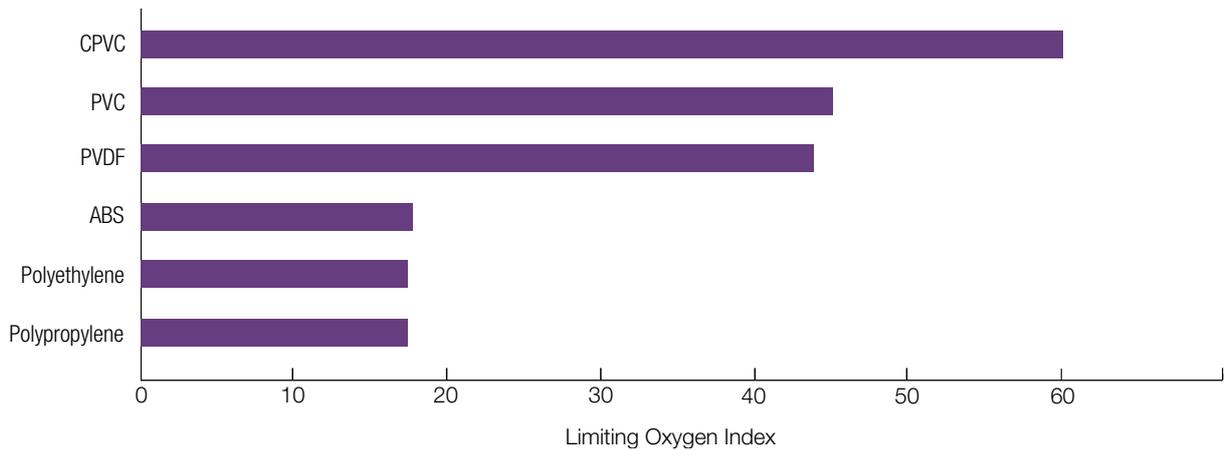


Burning Resistance

Lubrizol CPVC will not sustain burning under normal atmospheric conditions due to its very high Limiting Oxygen Index (LOI) of 60. LOI is the percentage of oxygen needed in the atmosphere to support combustion.

Since Earth's atmosphere is only 21% oxygen, Lubrizol CPVC will not burn unless a flame is constantly applied and will stop burning when the ignition source is removed. Alternative materials will support combustion due to their low LOI.

Material Comparison: Limiting Oxygen Index



Flame Spread and Smoke Generation

The flame spread and smoke generation characteristics of Lubrizol CPVC materials have been evaluated by a number of recognized test methods.

Flammability of Lubrizol CPVC has been tested in accordance with UL 94, which is used for determining the flammability of plastic materials used in the components and parts of finished products.

This test measures a material's resistance to burning, dripping, glow emission and burn through. Lubrizol CPVC has achieved the highest rating available within the scope of this test of V0, 5VB and 5VA.

Factory Mutual Clean Room Materials Flammability Testing Protocol (FM 4910)

Due to the growing concern in the semiconductor industry over safety and the high cost associated with fires and subsequent cleanup, Factory Mutual developed a standard (FM 4910) for semiconductor clean room materials.

FM 4910 requires that materials provide greater resistance to flame and smoke development, therefore limiting the damage that can be caused by fires. Lubrizol CPVC compounds have been evaluated and pass the FM 4910 test protocol for fire propagation & smoke development.

For more information contact us at: engineered.mat.emena@lubrizol.com



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