The following response is taken from previous questions regarding chemical compatability of Pyrogel. Owen Evans provided the information.

Out of the chemicals listed below, the only ones that show moderate short term resistance would be 36% Hydrochloric Acid and 25% Sodium Hydroxide. The rest of the chemicals will soak readily into aerogel insulation resulting in excessive Z-axis shrinkage, densification and loss of thermal properties. It is recommended that the insulation be immediately replaced if exposed to these chemicals.

N-Octane
Methanol
Isopropanol
Xylene
Hexane
Heptane
Cyclohexane

36% Hydrochloric Acid
93% Sulfuric Acid
25% Sodium Hydroxide
50% Sodium Hydroxide
N-Butylamine
Tributylamine
Dibutylamine
Diethylamin

All of our aerogel materials are inorganic-based materials comprised primarily of amorphous silica, which by nature slowly dissolves in strong alkali. This dissolution is likely accompanied by a negligible temperature rise and is by no means a highly exothermic reaction with excessive heat, smoke or fire. It is likely that the only risk associated with alkali exposure would be loss of thermal insulation properties. We thus would recommend that the material be immediately replaced upon exposure.

We have not performed any rigorous long-term exposure testing of aerogel to strong acids. We have, however, run short term experiments with concentrated sulfuric acid and observed significant wicking behavior. This wicking/soaking severely degraded material properties but was not accompanied with any noticeable exothermic reaction or smoking/fire.

With the exception of the strong acids/bases, the rest of chemicals are essentially "chemically" compatible with aerogel - meaning that if exposure should occur, they will be no oxidizing, corrosive, or strongly exothermic reactions. The material

would simply act as a passive “sponge”. This is not the case for sulfuric acid or strong sodium hydroxide, both of which will readily react with aerogel insulation.mical Resistance