



QPAC® 25 & QPAC® 40 Product Overview

Poly(alkylene carbonates) are synthesized through the polymerization of carbon dioxide and epoxides. The products of their combustion are carbon dioxide and water vapor, which are non-toxic, non-flammable, and environmentally safe. They burn cleanly in any environment, oxidizing or inert. They are colorless, amorphous thermoplastic polymers with low glass transition temperatures.

QPAC® is ideally suited in electronic applications as a processing binder for ceramic, metal and cermet powders. This includes pressing, sintering and injection molding operations to fabricate tapes, electronic pastes and parts. HERE'S WHY:

- > Decomposition at low temperature. QPAC® decomposes completely between 220°C - 340°C, which can be 100°C or more below the decomposition temperatures of other binders.
- > Decomposition can occur in a wide range of atmospheres including air, oxygen, nitrogen, hydrogen, argon and vacuum.
- > Upon decomposition, QPAC® leaves less than 10 ppm ash residue with the complete burn-out of carbon.
- > QPAC® is soluble in many common solvents.
- > The controlled polymer debinding process allows for improved part structure and pore size management.
- > The use of QPAC® as a binder allows for parts with excellent green strength and density.
- > QPAC® has excellent film-forming and coating capabilities.

QPAC® has superior binder burn-off characteristics compared to other materials. With the trend toward miniaturization of electronic components, these features are more important than ever.

PROPERTIES OF QPAC® FORMULATIONS:

QPAC® 25 - PEC - poly(ethylene carbonate)

Density	1.42
Chemical formula	$[\text{CH}_2\text{CH}_2\text{OCO}_2]_n$ or $\text{C}_3\text{H}_4\text{O}_3$
Tensile strength	500 - 1,500 psi
Solvents	Methylene chloride, Chloroform, and 1,2-Dichloroethane
Tg	25°C

QPAC® 40 - PPC - poly(propylene carbonate)

Density	1.26
Chemical formula	$[\text{CHCH}_3\text{CH}_2\text{OCO}_2]_n$ or $\text{C}_4\text{H}_6\text{O}_3$
Tensile strength	5,000 - 6,000 psi
Solvents	Methylene chloride, MEK, Acetone & Propylene carbonate
Tg	40°C

FORM

- > Powder
- > Pellets
- > Granulates
- > Solution
- > Aqueous Emulsion