

NB-180

The cleanest burning binder

Product Overview

Through cutting-edge green chemistry initiated at Cornell University, Novomer's first product NB-180 has been developed specifically for high performance industrial and commercial applications requiring a binder that decomposes rapidly, cleanly and is environmentally friendly.

NB-180 is an amorphous, colorless thermoplastic polymer (polypropylene carbonate) which decomposes into environmentally benign products making it the perfect solution for broad applications in the electronics, brazing and ceramics industries.

Due to a recently-patented catalytic process, NB-180 binders burn more uniformly and at lower temperatures than currently available sacrificial binders. Thus shorter binder burnout times and higher precision results in multiple applications can be achieved simultaneously.

NB-180 also produces extremely low ash residue by burning significantly cleaner than any current binders. Because of this negligible contamination, NB-180 is the preferred sacrificial material in the precise assembly of micro and nano-scale devices. Using NB-180 will decrease residues and defect rates as well as increase precision and strength during sintering processes.

Our highly efficient catalytic systems are tunable so NB-180 can be tailored to specific application needs. In addition, NB-180 dissolves in a variety of solutions in a broad range of viscosities to allow maximum flexibility.

From the start, NB-180 was formulated to be an invaluable tool for the creation of higher quality products at lower costs to meet the changing demands of end customers.



“Novomer’s NB-180 is the cleanest burning material I have ever used.... There are several potential uses of the material in MEMS fabrication, particularly temporary wafer bonding, which will save both time and money through the reduction of processing steps.”

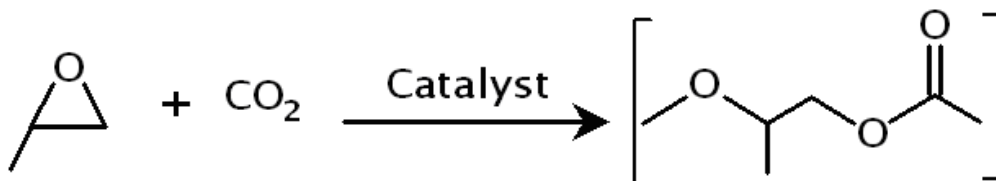
Shahyaan Desai, Cofounder & CTO, Mezmeriz Inc.

Benefits

- Burns out rapidly and uniformly into carbon dioxide and water without violent gas formation
- Extremely low ash residue compared to existing sacrificial materials and binders
- Decomposes completely at temperatures significantly lower than that of other binders
- Soluble in many common, inexpensive solvents excluding water
- Produced in customizable viscosities and molecular weights to meet specific application requirements

Typical Properties

Polypropylene carbonate materials such as NB-180 are produced from the metal-catalyzed copolymerization of CO₂ with epoxides. Novomer is able to produce NB-180 using a patented highly selective catalyst system and process.

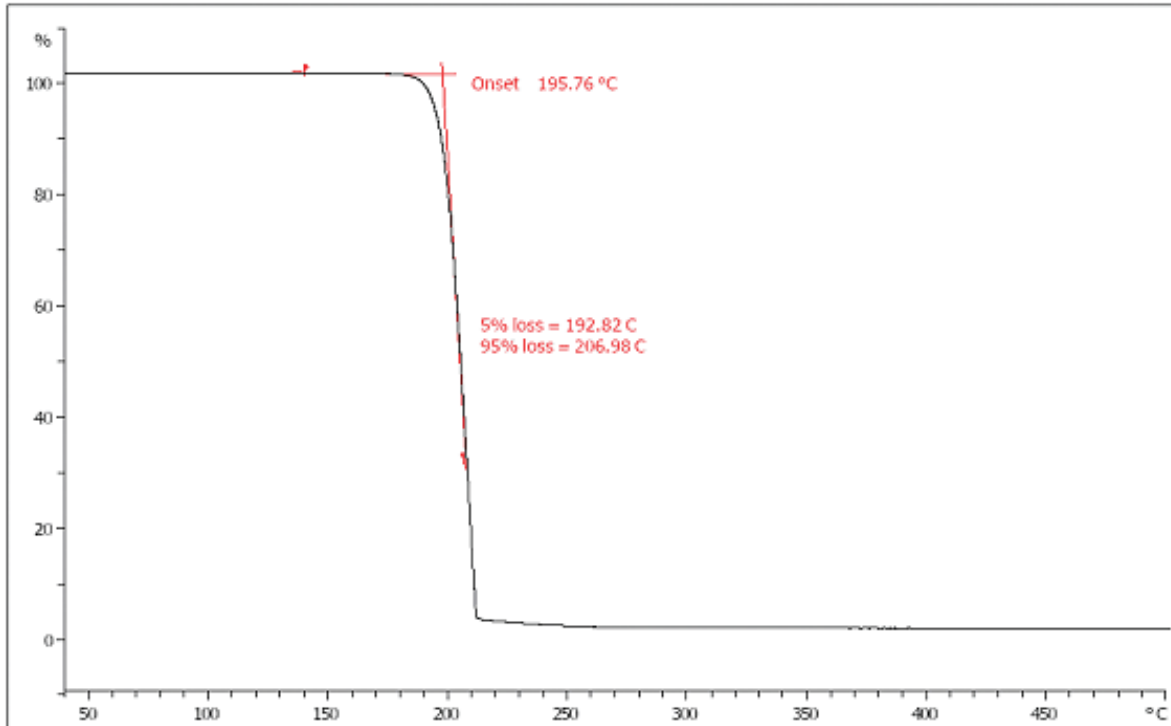


NB-180, Poly(propylene carbonate)		Test Method
Chemical Formula	(C ₄ H ₆ O ₃) _n	
Molecular Weight	185-250K	GPC
Density	1.280 g/cm ³	ASTM D792
Glass Transition Temperature		
Onset	34.6°C	
Midpoint	37.1°C	DSC
Decomposition Temperature	200°C	TGA/DSC

Thermal Properties

NB-180 burns extremely cleanly and predictably allowing it to be used in high performance applications where precision enhances product quality.

NB-180 Thermal Gravimetric Analysis (TGA)



Heating Rate: 5°C / min

Ash Content

NB-180, Poly(propylene carbonate)		Test Method
Ash Content	<1 ppm	ASTM D5630

Viscosity Data

NB-180 is available in solid form or in a wide range of solutions with varying viscosities to help meet your specific application needs.

Viscosity of NB-180 in Different Solutes

