# **connora**technologies **Re-inventing Thermosets** Rey Banatao, PhD

## What if we could



## **EVERYTHING?**

## **CLEANING UP THE PAST**

#### GRINDING

2444

**PYROLYSIS** 

# **DESIGN FOR THE FUTURE**

RECYCLE

REVERSE

#### CONNORA TECHNOLOGIES: 4-28-2015

REMOVE pool

RELEASE



#### **THERMOSET COMPOSITE MATERIALS**







### THE COST OF PERMANENCE 10-40% Manufacturing Waste

2015

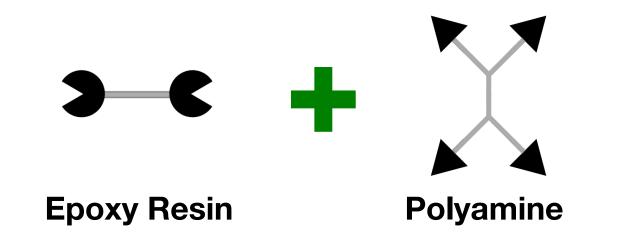


# **Overcoming Permanence**



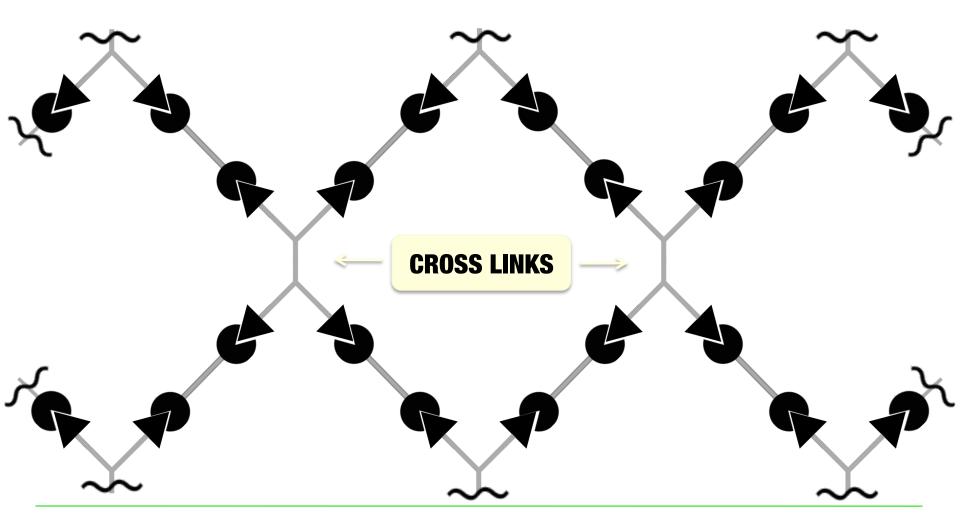
## "Connora has redesigned thermosets to be **Recyclable from the start**"

#### **EPOXY THERMOSETS ARE MADE BY REACTING:**



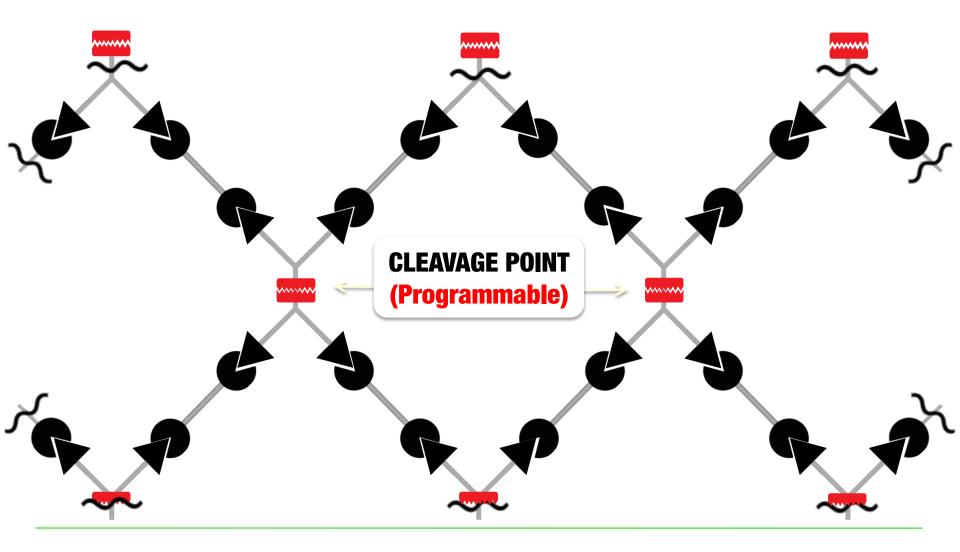
## **CONVENTIONAL EPOXY**

#### IRREVERSIBLE BONDS MAKE TRADITIONAL THERMOSETS PERMANENT



# **'RECYCLAMINE' TECHNOLOGY**

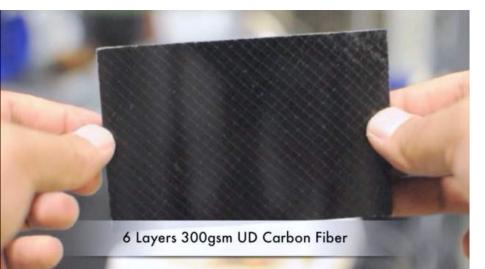
CONNORA' S CLEAVABLE BONDS ALLOW THERMOSETS TO COME APART



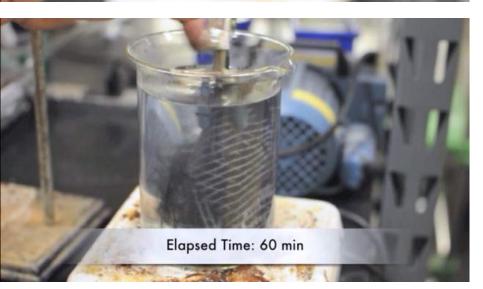


8% ↓Carbon Fiber (@ 20% waste)
\$5,000 Carbon Fiber per Car (500 lbs @ \$10/lb)
\$400 Savings per Car
\$7 M Savings per Line/yr (~17k units)

#### LOW ENERGY RECYCLING

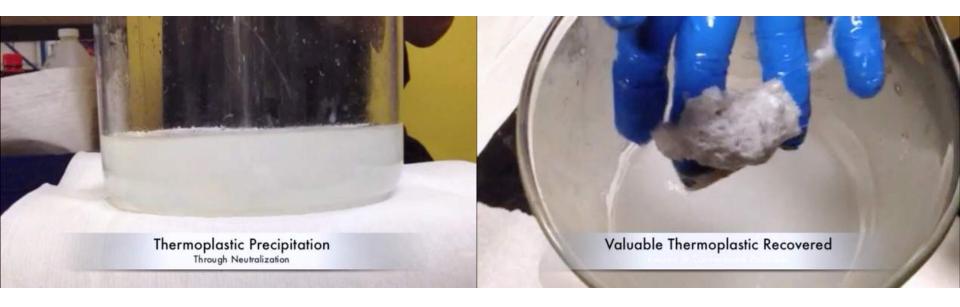








#### LOW ENERGY RECYCLING



# #MAKETHINGSBETTER









#### CLOSED LOOP MATERIALS PROOF-OF-CONCEPT

# #MAKETHINGSBETTER



