Poly (Hydroxyl Urethane) Adhesives and Binders from CO_2-Based Intermediates

"CO_2-Based Glue"

Problems with existing epoxies:

- They create volatile emissions that are toxic
- They require poisonous chemistries
- They require environmentally nasty chemistries
- They typically require a specific type of curing (toughening/hardening in material creation process): either heat or light
- They tend to be made from petrochemicals

How NETL's epoxy-like material is different:

- It uses CO2 as one of its components
- Uses some, but little, petrochemicals
- Can be cured both by heat and light
- Has no isocyanate chemistry
- Is a more flexible material than existing epoxies
- It is more environmentally friendly
- Has excellent adhesive properties, exceptionally well with glass and metal
- Is solvent free
- Uses simple chemistry (mix and cure)
- Mixes well with silica gel, (flow properties can be modified easily)
- Like others, it is a simple two component liquid
- It is made from the off the shelf commercially available components
- Should cost less to make
- Is basically an environmentally friendly super glue

The inventors have reduced to practice three different formulations out of the many possibilities. The adhesive is light-yellow in color, unless it is produced in thin film form, in which case it is transparent.