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## **Making soy-based oligomers and polymers and its applications**

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Soybean oil is an inexpensive, readily available renewable resource. There is an abundant supply of soybean oil in the Midwest. In this project, reactions were conducted to investigate the conversion of soybean oil to oligomers to be used in producing soy-based polyols for polyurethane. The soybean oil was reacted with different monomers, such as dicyclopentadiene and divinylbenzene in the presence of different catalysts such as, boron trifluoride. The degree of cross-linking was determined using iodine number and solvent dissolution tests. Thermal stability of the polymers and the carbon yield was determined using Thermo Gravimetric Analysis (TGA). The plastics had a thermal stability up to 450°C and carbon yield up to 15%.