

Anatomy of a wheel

What is a Bonded Abrasive?

A resin bonded abrasive is a grinding or cutting tool composed of abrasive grains which are held tightly together by a bonding agent and typically reinforced with a woven material. Within the bonded abrasives category are grinding and cutting wheels, as well as "stones" in a variety of shapes and sizes.

3 Main Components of Resinoid Bonded Abrasives

Abrasive Grains

Abrasive grains are particles of man-made abrasive compounds. We use only high quality grains that are made to our specifications. The chemical structure of the grains determines the physical properties of the grains (i.e. shape, sharpness, hardness, friability). Common grain types used in making bonded abrasives include:

- ❑ **A - Aluminum Oxide**
A tough blocky shaped grain used for cutting metals and other high tensile strength materials without excessive fracturing
- ❑ **C - Silicon Carbide**
A very hard and very sharp abrasive suited for non-metallic materials such as concrete
- ❑ **Z - Alumina Zirconium** (also referred to as Zirconium)
A very fine, dense crystalline grain, which can be used for rugged stock removal

Bonding Agent

The bonding agent that holds the grains together determines the resistance of the wheel. United Abrasives uses a resinoid bond that is formulated to meet the unique specifications of each product.

Reinforcement

The reinforcement material provides extra strength to use the wheel at maximum RPMs and withstand lateral pressure that is applied during use. We use multiple layers of long stranded fiberglass, which are woven to form an exceptionally strong reinforcement layer specific to the application.

Combining the 3 Components

During the manufacturing process, these three components are combined to form a grinding wheel. The grains and bonding agents are measured, combined, and pressed in an automated hydraulic press.