HOW ABRASIVES WORK

BONDED ABRASIVES AND DIAMONDS



Abrasive wheels are actually thousands of abrasive grains bonded together to form a single cutting tool. As the wheel contacts the material, the exposed grains begin to cut and grind material away.



As the wheel grinds, the material fractures the surface of the grains, exposing new cutting points. It also wears away the bond between the grains exposing fresh grain.



Eventually the surface grains are consumed. The old grains are released as the bond wears away, and new grains are exposed. This process continues until the wheel is completely consumed.

COATED ABRASIVES & FLAP DISCS



Coated abrasives are a single layer of abrasive grain bonded to a backing. As the grain contacts the material, it starts to cut and grind the material away.

NON-WOVEN ABRASIVES



Very flexible and open non-woven base structure is coated with abrasive grains. This open structure prevents loading and reduces heat build-up.



As the grains grind, they fracture to form new cutting points extending the life of the abrasive.



When the grains fracture to a point where they are no longer exposed above the bond, the abrasives will no longer effectively remove material and should be replaced.



As pressure is applied, the abrasives contact the work piece and some pressure is absorbed by the flexibility of the non-woven structure. This allows for the abrasive to conform to the shape of the surface, giving a more uniform finish and a finer finish in fewer steps than with coated abrasives.



As the grain breaks down, the base structure also wears away to expose the nest layers of grain until the abrasive is consumed.

COMMON APPLICATION PROBLEMS

LOADING



Filling of the pores of the grinding wheel surface with the material being ground, usually resulting in decreased cutting rate and poor finish

The wheel can be dressed to remove the loading temporarily.

• To prevent loading, select a wheel specifically designed for the application.

TYPES OF BONDED ABRASIVES



SURFACE GRINDING





An extreme condition of loading on a grinding wheel caused by dull abrasive grain and a buildup of resin covering the grain

- · The wheel can be dressed to remove the glaze temporarily.
- To prevent glazing, select a softer grade or coarser wheel.



GLAZING

