

Aluminum and Aluminum Alloys

EXTEC® Δ **SIMPLICITY**

Color Guide to Materials Preparation

Aluminum and aluminum alloys are difficult to prepare because of their relative low hardness and the secondary phase which typically contain oxides that can be dislodged (pulled out) and/or scratch the polished surface during preparation. The key to polishing is to retain the inclusions while fine polish the sample.

Hardware I

1. Extec Labcut 250B Abrasive Cutting Machine (www.extec.com/labcut250B)
 2. Extec Labpress 40 Automatic Mounting Press (www.extec.com/labpress40)
 3. Extec Labpol 12-3DI Auto Polisher/Grinder (www.extec.com/labpol12-3DI)
- or
4. Extec Labpol 12 Auto Polisher/Grinder (www.extec.com/labpol12)

Sectioning II

A rubber – silicon carbide abrasive blade is preferred for medium hardness materials

Mounting III

Compression mounting with phenolics is typically used like our number 14505 black epoxy-mounting compounds.

Grinding/Polishing Method -- Aluminum and Aluminum Alloys

Surface	Code	Abrasive/ Type Size	Lubricant	Code	Pressure (psi)	Time	Wheel Speed	Head Speed/ Direction
Coated Abrasive	VI	320 SiC	Water		5 psi	60 seconds	120 rpm	60rpm/Contra
Coated Abrasive	VI	400 SiC	Water		5 psi	60 seconds	120 rpm	60rpm/Contra
Coated Abrasive	VI	600 SiC	Water		5 psi	60 seconds	120 rpm	60rpm/Contra
Coated Abrasive	VII	P2400 SiC	Water		5 psi	60 seconds	120 rpm	60rpm/Contra
Coated Abrasive	VII	P4000 SiC	Water		5 psi	60 seconds	120 rpm	60rpm/Contra
Optigam	VII	3um Diamond Suspension	Water Soluble Diamond Extender	I	5 psi	3 minutes	120 rpm	60rpm/Contra
S-Plan	VII	1um Diamond	Water Soluble Diamond Extender	I	5 psi	2 minutes	120 rpm	60rpm/Contra
*Alphagam or Chemic Cloth	VIII	Colloidal Silica .06um	The last 10 seconds wash with Distilled Water		5 psi	90 seconds	120 rpm	120rpm/Contra

fm: 0420-20030407

