

We hope the information in this booklet has been of assistance, either in educating or reinforcing your knowledge of tungsten carbide knives' use. The work in our laboratories is not the only source for the information contained here. Our satisfied customers have contributed to the contents of this manual.

Your contributions regarding applications, techniques and care of the tungsten carbide knives are welcome also.

We take special pride in the results you get with our products. If we can ever assist in improving your results, please use our toll free number to call and be sure to look for additional Applied Diamond products in the future.



3825 Lancaster Pike Wilmington, DE 19805
Phone: 800-222-5143 or 302-999-1132
Fax: 302-999-8320
Email: services@usapplieddiamond.com
Visit Us Online: www.usapplieddiamond.com

We maximize the physical properties of diamond and tungsten carbide to produce precise edges through exceptional craftsmanship, sophisticated equipment and customized engineering.

We provide you with:

High Quality Products

Each edge is rigorously tested to meet the requirements of your specific application.

Quick Delivery

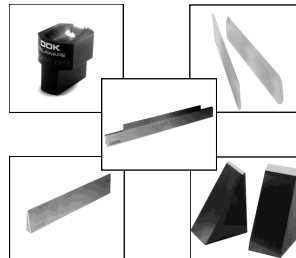
Enabled by our US manufacturing presence and a commitment to help with your needs.

Creative and Responsive

Our craftsmen are willing and able to make the tools that ease your job and improve your results.

Unconditional Guarantee

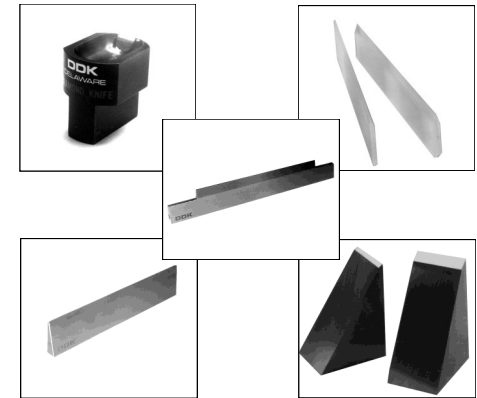
Our unconditional guarantee allows you to see the benefits of our unique products without risk.



Applied Diamond, Inc.
Toll free: 800-222-5143
or 302-999-1132
www.usapplieddiamond.com



A Care & Use Guide For Tungsten Carbide Knives



3825 Lancaster Pike Wilmington, DE 19805
Phone: 800-222-5143 or 302-999-1132
Fax: 302-999-8320
Email: services@usapplieddiamond.com
Visit Us Online: www.usapplieddiamond.com

Please Be Careful!!

Our knives are made of solid tungsten carbide. They are heavy and very sharp. If dropped, they will cut through whatever they land on. Make certain that hands and feet are never located under a tungsten carbide knife. Keep your knives safely stored in their box or your microtome when not in use.

Tungsten carbide microtome knives are made by Applied Diamond from the finest grade of tungsten carbide available. We can create a remarkably sharp and durable edge on tungsten carbide because it is extremely hard and its structure is regular and fine.

These characteristics also result in an edge that can be very delicate. To prolong the life of this edge, never touch it with any solid object.

1. Avoid touching the edge when inserting or removing the knife.
2. Don't contact the edge with any tools when sectioning.
3. Safely store the blade in its box when not in use.

The best sections come from a clean environment.

1. Completely clean the knife with alcohol before using it.
2. Remove all sectioning debris from your microtome between uses.

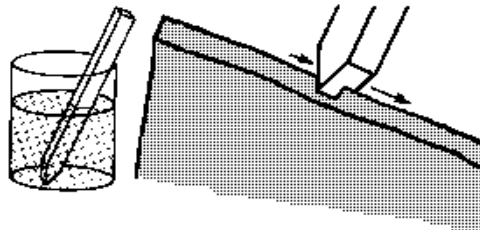
Hints for Using Your Tungsten Carbide Knife

Sectioning problems usually come in three forms: chatter, compression and knife marks. As a general rule, sectioning results with a tungsten carbide knife are affected by section thickness, sectioning speed, block hardness and clearance angle setting. You should spend some time learning the effects that changes in these operating parameters have on section quality.

Chatter is the result of vibration during cutting and appears as regularly spaced thick and thin lines on the section perpendicular to the direction of cut. Too low a clearance angle, too fast an approach and too hard a specimen are several causes of chatter.

Compression is a crushing of the section as it is cut resulting in a section that is shorter than the original block face and thicker than the microtome setting. Too high a clearance angle, too soft a specimen and a dull knife can cause compression.

Knife marks are lines that appear on the section parallel to the direction of cut. A dirty or damaged knife edge causes knife marks.



Care of Your Tungsten Carbide Knife

If you have sectioning problems, especially knife marks, a dirty knife may be one of the causes. Clean the edge by:

1. Soaking a tissue or Kim-Wipe with reagent alcohol.
2. Gently dragging a corner of the tissue along the side of the knife, parallel to the edge.
3. Repeating on the other side of the blade and allowing to air dry.

Alternatively, a high-density polystyrene rod, available from Applied Diamond and many EM disposables suppliers, is a safe tool to use for tungsten carbide knife edge cleaning. Sharpen it to a chisel edge of 45° using a double-edge razor blade. DO NOT USE DRY. Dip the rod into reagent alcohol and shake or blot on filter paper to remove excess.

View the knife edge under a dissecting microscope and press the chisel end of the stick against the edge of the knife as though to split the stick. Using little force, wipe the stick parallel to the cutting edge, never obliquely or at a right angle. Move across the entire length of the knife edge then use a fresh part of the stick and repeat in the opposite direction.

If these methods don't eliminate your problems, contact Applied Diamond at 302-999-1132 or Toll-Free at 1-800-222-5143. We can recommend other cleaning materials and techniques compatible with your tungsten carbide knife.

