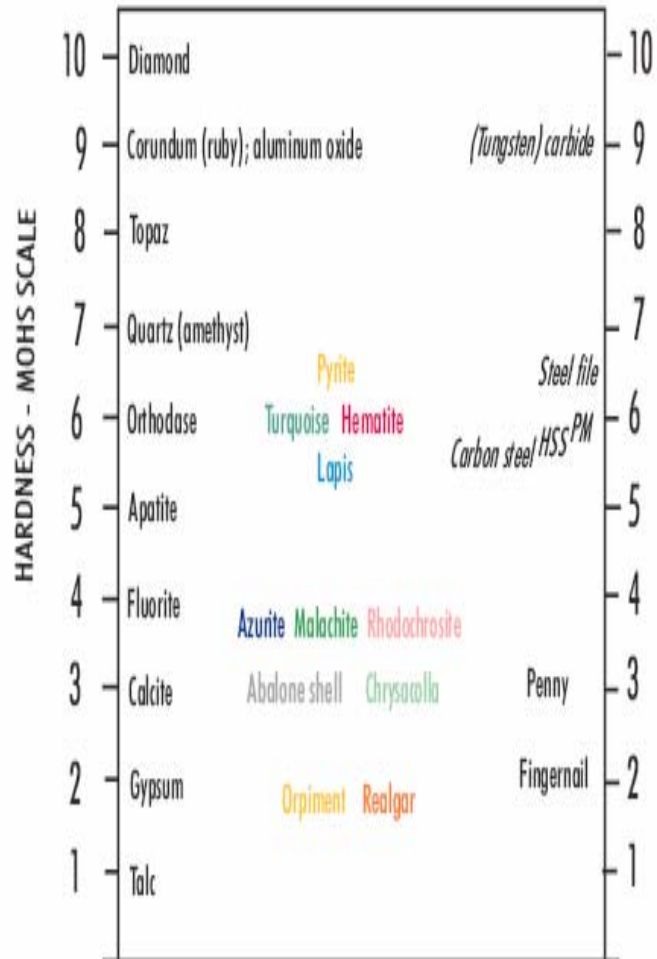


HARDNESS DIAGRAM



TABLES 1 & 2

Table 1. Minerals that are soft enough to work with HSS lathe tools:

Mineral	Color	Formula	Hardness (Mohs)	Comments
Azurite	deep blue	$\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$	3.5-4	
Calcite	colorless; white	CaCO_3	3	
Chrysacolla	blue-green	$\text{Cu}_4\text{Si}_4\text{H}_2\text{O}_{10}(\text{OH})_{10}$	2-4*	
Fluorite	various	CaF_2	4	look for deep purple
Hematite powder	orange-red	Fe_2O_3	5.5-6.5**	
Malachite	green	$\text{Cu}_2\text{CO}_3(\text{OH})_2$	3.5-4	
Manganosite	green	MnO	5.5**	
Rhodochrosite	pink	MnCO_3	3.5-4	
Zincite	dark red	ZnO	4	

*May be harder because of impurities. My sample from Craft Supplies USA destroyed HSS edges.

**Although these are hard, they can be worked with HSS tools because they are fine powders.

Table 2. Minerals that should be covered with CA glue or epoxy:

Mineral	Color	Formula	Hardness (Mohs)	Comments
Abalone shell	mother-of-pearl	CaCO_3	3	
Chalcopyrite	greenish gold	CuFeS_2	3.5-4	
Hematite (specular)	metallic	Fe_2O_3	5.5-6.5	
Lapis (lazurite)	medium blue	$(\text{Na,Ca})_8(\text{AlSiO}_4)_6(\text{SO}_4,\text{S,Cl})_2$	5-5.5	may include pyrite grains
Pyrite	brassy gold	FeS_2	6-6.5	"fools gold"
Turquoise	blue-green	$\text{CuAl}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O}$	6	
Cinnabar***	red	HgS	2.5	***contains mercury!
Erythrite***	pink	$\text{Co}_3(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$	1.5-2.5	***contains arsenic
Orpiment***	yellow	As_2S_3	1.5-2	***contains arsenic
Realgar***	orange	AsS	1.5-2	***contains arsenic
Vanadinite***	yellow to red	$\text{Pb}_5(\text{VO}_4)_3\text{Cl}$	3	***contains lead, vanadium
Wulfenite***	orange-red	PbMnO_4	3	***contains lead

***These contain one or more poisonous elements!

REFERENCE:

The Addition of Minerals to Woodturnings: Part I. *More Woodturning*, September/October, 2006, pages 26-30.

The Addition of Minerals to Woodturnings: Part II. *More Woodturning*, November, 2006, pages 28-30.

The Addition of Minerals to Woodturnings: Part III. *More Woodturning*, December, 2006, pages 27-30.

Sources:

Crushed minerals: Craft Supplies, USA www.woodturnerscatalog.com 1 800 551 8876

Mortar/pestle; sieves: Ward's Natural Science (Rochester) www.wardsci.com 1 800 962-2660

Hunter (carbide) tool Mike Hunter 4648 Upton Avenue South, Minneapolis, MN 55410 1 612-718-7926
mlh55410@aol.com

Unique Tool (carbide scrapers) THINGS WESTERN / UNIQUE TOOL uniquetl@vtc.net
www.thingswestern.com/chisels.htm

Joe and Janet Rollings, Unique Tool, Rodeo, NM, 1-800-840-2434.