



## Technical Comparison of Different Micro-Milling Media

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Technical data	YTZP	SZS	ZAL-32	ZAL-27
Composition(%)	ZrO <sub>2</sub> -Y <sub>2</sub> O <sub>3</sub>	ZrSiO <sub>4</sub>	Al <sub>2</sub> O <sub>3</sub> -ZrSiO <sub>4</sub>	Al <sub>2</sub> O <sub>3</sub> -ZrSiO <sub>4</sub>
Density (g/ccm)	6.0 ± 0.05	4.0 ± 0.05	3.2 ± 0.05	2.7 ± 0.05
Bulk density (g/ccm)	3.7	2.5	2.2	1.7
Hardness (HV)	1250	1020	872	761
Breaking Load (KN)	1.5	0.8	N/A	N/A
Sizes Available (mm)	0.03 ~4	0.4~12	0.4~7	0.4~7
Advantages	<ul style="list-style-type: none"> <li>• High density for high energy mill.</li> <li>• Wear resistant</li> <li>• low contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Medium density</li> <li>• High breakage resistance</li> <li>• Optimum performance/price ratio</li> </ul>	<ul style="list-style-type: none"> <li>• Intermediate density media</li> <li>• Substitutes glass beads</li> <li>• Higher efficiency</li> <li>• Better wearing resistance than glasses</li> </ul>	<ul style="list-style-type: none"> <li>• Light density media</li> <li>• Substitutes glass beads</li> <li>• Higher efficiency</li> <li>• Better wearing resistance than glasses</li> </ul>
Applications	<ul style="list-style-type: none"> <li>• Coatings (paints, printing inks, inkjet inks)</li> <li>• pigment and dyes</li> <li>• pharmaceuticals</li> <li>• electronic materials</li> <li>• Chemicals</li> </ul>	<ul style="list-style-type: none"> <li>•Coatings (paints, inks)</li> <li>•Pigments and dyes</li> <li>•Agrochemicals</li> <li>•Minerals</li> <li>•Gold, silver, platinum, lead, copper and zinc sulfide etc.</li> </ul>	<ul style="list-style-type: none"> <li>•Coatings (paints, inks)</li> <li>•Pigments and dyes</li> <li>•Agrochemicals</li> <li>•Minerals</li> <li>•Gold, silver, platinum, lead, copper and zinc sulfide etc.</li> </ul>	<ul style="list-style-type: none"> <li>•Coatings (paints, inks)</li> <li>•Pigments and dyes</li> <li>•Agrochemicals</li> <li>•Minerals</li> <li>•Gold, silver, platinum, lead, copper and zinc sulfide etc.</li> </ul>



# Hardness Comparison Reference Chart

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Mohs (MM)	Knoop (HK)	Brinell Indentation (HB Indentation)	Brinell 10mm Standard 500 kgf (HB 500)	Rockwell A-Scale (HRA)	Vickers (HV)	Material Example
1	--	--	--	--	27	Talc
2	--	--	--	--	61	Gypsum
2.5	117	--	90	--	102	-
3	169	4.9	136	--	157	Calcite
3.5	239	4.10	189	60	229	-
4	327	3.50	--	66	315	Fluorite
4.5	436	3.08	--	72	418	-
5	564	2.76	--	77	535	Apatite
5.5	705	2.44	--	81	669	-
6	839	2.27	--	84	817	Feldspar
6.5	929	--	--	86	982	-
7	--	--	--	--	1161	Quartz
8	--	--	--	--	1567	Topaz
9	--	--	--	--	2035	Corundum
10	--	--	--	--	--	Diamond