



# Coated Abrasives

Abrasive grain, grit sizes and applications

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**Online-version**  
with updated product data

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### Abrasive grain

Name	Formula (chem.)	Mineral	Density in g/cm <sup>3</sup>	Hardness by Koop in GPa
Aluminum oxid	Al <sub>2</sub> O <sub>3</sub>	Korund	3,96	20
Sapphire Blue	Al <sub>2</sub> O <sub>3</sub>	microcrystalline aluminum oxide	3,55	21
Alumina-zirconia	(Al <sub>2</sub> O <sub>3</sub> ) <sub>1-x</sub> (ZrO <sub>2</sub> ) <sub>x</sub>	Eutectic of Al <sub>2</sub> O <sub>3</sub> - ZrO <sub>2</sub>	4,40	17
Silicon carbide	SiC	alpha + beta SiC	3,20	25
Garnet	(SiO <sub>2</sub> ) <sub>3</sub> (FeO) <sub>3</sub> Al <sub>2</sub> O <sub>3</sub>	Almandine	3,40 - 4,30	13 - 15
Emery	Al <sub>2</sub> O <sub>3</sub> (FeO)	natural corundum	3,70 - 4,30	16 - 20

### Grit grain sizes, standard and areas of validity

Institution	Validity	Standard	Grit range
FEPA DIN ISO	Europe and world-wide	43-D-1984 R 1993, part 1 and 2 DIN 69176, part 1 and 2 DIN ISO 6344, part 1 and 2	P 16 - P 220 = Macro grits
		43-D-1984 R 1993, part 1 and 3 DIN ISO 6344, part 1 and 3	P 240 - P 2500 = Micro grits
ANSI	USA and world-wide	B 74.18-1984	# 16 - # 220 = Macro grits # 240 - # 600 = Micro grits
JSA	Japan und Asia	JIS R 6010-1991	P 12 - P 220 = Macro grits P 240 - P 1200 = Micro grits
Abbreviations: FEPA = Federation Européenne des fabricants de Produits Abrasifs DIN = Deutsches Institut für Normung ISO = International Organization of Standardization ANSI = American National Standards Institute JIS = Japanese Industrial Standard JSA = Japanese Standards Association			

### Application

Abrasive grain	Materials
Aluminum oxide	Metal and wood working in general
Sapphire Blue *	Metal
Alumina-zirconia	Steel, Titanium
Silicon carbide	Cast iron, non-ferrous metals, oxide film, wood (chipboard), glass, plastics, ceramics
Garnet	Wood
Emery	Metal

\* Application recommendations have to be considered.

### Grit size comparison (Abrasive paper, film, cloth, stich bonded cloth and fiber)

$d_{k50}$ (μm) average grain diameter	750	630	525	400	325	260	200	160	125	93	76	68	58	52	46	39	35	30	26	22	18	14	12	10	8	
FEPA 43-D-1984 R 1993 DIN 69 176 DIN ISO 6344	P 24	P 30	P 36	P 40	P 50	P 60	P 80	P 100	P 120	P 150	P 180	P 220	P 240	P 280	P 320	P 360	P 400	P 500	P 600	P 800	P 1000	P 1200	P 1500	P 2000	P 2500	
JIS R 6010 - 1991	P 24	P 30	P 36	P 40	P 50	P 60	P 80	P 100	P 120	P 150	P 180	P 220	P 240	P 280	P 320	P 360	P 400	P 500	P 600	P 800	P 1000	P 1200				
ANSI B 74.18-1984	24	30	36	40	50	60	80	100	120	150	180	220		240		280	320		360	400	500	600				

The various grit size standards differ considerable due to respective used test methods.

### Grit size comparison (webrax Non-woven web)

Hermes Standard	+ 80	+ 100	+ 120	+ 150	+ 180	+ 220	+ 280	+ 320	+ 360	+ 400	+ 500	+ 800	+ 1500
Grit size name	coarse	medium			fine		very fine				super fine	ultra fine	

