PRODUCT LIST

FRITS AND BONDS FOR GRINDING WHEELS

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VITRIFIED BONDS IN GRINDING WHEELS

ENAMELS

Ceramic Frits and Vitrified Bonds for Grinding Wheels

This catalogue presents our standard frits for vitreous and resin bonds for traditional grinding wheels and ready-made vitrified bonds for Al2O3, CBN, SiC and diamond abrasive grains in grinding wheels.

They are suitable for temperatures ranging from 950°C to 1300°C.

The ceramic bonds are based on inorganic materials, such as frits, feldspars, kaolin, different clays etc. They present the agglomeration of abrasive grains - the connective material, which connects the abrasive grains in one totality and pore. The fluxing behavior of the frits during melting is of great significance and it must be suitable for the particular use. The surface tension of the frits used, is equally important in securing good bond as fluxing behavior.

Frits for ceramic bonds in grinding wheels are developed according to **the needs and preferences of individual customers** because of the specificity of each product.

Frits for grinding wheels are available in granulate or powder form.

Milling fineness is in average 1-3% rest on a 63 µm sieve.

Table 1: Frits for the production of grinding wheels

Product	ς	TEC (linear)	SNT T	SFT T	HS T	FS T	Application	Chemical Composition												
	g/cm^3	10^{-7}/K	°C	°C	°C	°C		Al_2O_3	SiO_2	B_2O_3	MgO	CaO	BaO	L_i2O	Na_2O	K_2O	P_2O_5	ZnO	PbO	TiO_2	F
R-2030	2,4	85	600	675	765	870	**A**	-	+	30-40	-	-	-	-	+	-	-	-	-	-	-
R-2031	2,4	97,4	660	820	1160	1300	**A**	+	+	<10	+	+	-	-	+	+	+	-	-	-	-
R- 2032	2,4	50,2	650	805	1050	1195	**C,B**	+	+	>25	+	-	-	+	-	-	-	-	-	-	-
R-2034	2,5	116,2	560	670	750	800	**C**	+	+	>30	-	+	-	-	+	+	-	-	-	-	-
R-2035	2,4	104	560	670	750	820	**A**	+	+	>30	-	-	-	-	+	+	-	-	-	-	-
R- 2054	2,4	133	440	520	596	660	**A, C, R**	+	+	20-30	+	+	+	+	+	+	-	-	-	-	-
R- 2058	2,5	117	545	635	700	730	**R**	+	+	20-30	+	-	-	-	+	+	-	-	-	-	-
R-2060	2,4	101,3	470	545	620	670	**D**	+	+	20-30	+	-	-	-	+	+	-	+	-	-	-
R- 2081	2,1	50	630	780	1070	1100	**C,B**	+	+	20-30	-	+	-		+	-	-	-	-	-	-
R-2095	2,3	95	580	680	780	880	**A**	+	+	25-30	-	-	-	-	+	+	-	-	-	-	-
R-2096	2,3	64	590	720	830	940	**C**	-	+	>35	-	+	-	-	+	-	-	-	-	-	-
R-2097	2,4	75	670	810	810	670	**A**	+	+	5-10	-	+	-	-	+	-	-	-	-	-	-
R-2098	2,3	56	610	760	980	765	**C**	+	+	20-30	-	-	-	-	+	+	-	-	-	-	-
R-2704	2,5	94	570	670	1020	950	**A, C**	+	+	>10	-	-	-	-	+	+	-	-	-	+	+
K21S001	2,5	86	680	760	1020	1100	**R**	+	+	-	0-5	10-15	-	-	10-15	<0,5	-	-	-	-	-

ς = Density
TEC = Linear thermal expansion coefficient alpha (20-400°C) x 10^7
SNT T = Sintering Temperature °C
SFT T = Softening Temperature °C
HS T = Hemisphere Temperature °C
FS T = Fusion Temperature °C

Application = A – Corundum, (alumina Al2O3)
B – Cubic boron nitride (CBN)
C – Silicium carbide (SiC)
D – Diamond
R – Resin

Bonds for Grinding Tools

The bond should reach high body strength that cause wheel to work at maximal peripheral velocity (rpm). It is necessary to set up the instrument hardness in wide limits that means to releasing and vacating the grain in the moment of its blunting. The instrument structure is other important parameter; it is porosity of ceramic mass. It improves a cooling agent income and the grinded material output.

Table 1: Ready to Use Vitrified Bonds

Product	TEC	Sintering T °C	Softening T °C	Hemisphere T °C	Application	Temperature °C
V06D03	107	550	690	750	D	650 °C
V06D28	51,4	680	855	1315	D	600 – 650 °C
V06D29	55,6	680	870	1325	D	600 – 650 °C
V07A07	-	595	675	745	A	700 °C
V07A14	103,5	610	700	765	A	700 - 750 °C
V07A19	91,4	604	689	794	A	700 - 800 °C
V07C26	85,1	655	765	825	C	750- 800 °C
V07C27	-	665	765	825	C	750- 800 °C
V08A18	84,5	610	765	885	A	800-900°C
V08B08	79.3	660	745	880	B	800-900°C
V08B22	105,6	654	724	859	B	800-850°C
V08C15	60,3	775	875	1205	C	800-900°C
V09A01	81,9	670	750	850	A	900°C
V09A02	72,4	790	1010	1295	A	900-1000°C
V09C04	62,4	885	1075	1315	C	900-1150°C
V09C09	-	835	1055	1285	C	900-1100°C
V09C11	58	780	1230	1270	C	900-1100°C
V10A10	81	820	1035	1080	A	1000-1100°C
V10A11	-	790	870	980	A	1000-1100°C
V10C13	60	820	1190	1460	C	1000-1150°C
V11A01	-	1025	1175	1260	A	1100°C
V11A02	-	780	840	950	Ceramic low temperature bond	
V11C23	-	1080	1195	1355	C	1100-1150°C
V12A05	69	1040	1160	1290	A	1200-1250°C
V12A06	63	760	930	1045	A	1200-1250°C
V12A16	70	1060	1190	1315	A	1200-1250°C
V12A17	75	1080	1145	1240	A	1200-1250°C
V12A21	68	1130	1240	1345	A	1250°C
V12A24	-	960	1040	1175	A	1250°C
V12A25	-	965	1095	1200	A	1250°C
V12C12	56	1105	1300	1435	C	1200-1250°C
V12C20	-	1.120	1.265	1.400	C	1200-1250 °C
V12C25	56,6	1.185	1.355	1.445	C	1200-1250 °C
V13A72	-	-	-	-	A	1300 °C
V14C01	-	1.130	1.255	-	C	1400 - 1450 °C
V14C02	-	-	-	-	C	1400 °C
V14C03	-	1.140	1.355	-	C	1400 °C

TEC = thermal expansion coefficient alpha (20-400°C) x 10^{-7}

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