

# SmCo powder

Samarium Cobalt holds its standard property in higher maximum temperatures than neodymium, although its maximum strength is less. The cost of SmCo material is the most expensive, so SmCo is recommended only when its performance in a high temperature environment is a concern.

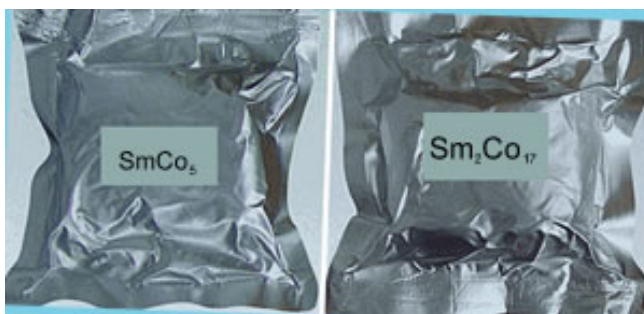
## The characteristics of Samarium Cobalt Magnet

\*Very high magnetic properties with good stability.

\*Superior resistance to high temperature, Curie temperature of majority is over 800

\*Excellent corrosion resistance capability, no coating is needed for surface protection.

## Typical Magnetic Properties of Samarium Cobalt Materials



Properties of SmCo Powder

Grade	Residual Flux Density Br		Coercive Force Hcb		Intrinsic Coercive force Hcj		Max. energy product (BH)max	
	mT	kGs	kA/m	koe	kA/m	koe	kJ/m <sup>3</sup>	MGo <sup>e</sup>
smco-YX6	500~600	5.0~6.0	≥358	4.5~5.5	≥960	≥12.0	47~72	6~9
smco-YX10	600~700	6.0~7.0	≥438	5.5~6.5	≥1200	≥15.0	64~88	8~11
smco-YX12	700~750	7.0~7.5	≥520	6.5~7.3	≥1591	≥20.0	96~120	12~15
smco5-YX16	750~880	7.5~8.8	597±40	7.5±0.5	≥1591	≥20.0	127±16	16±2
smco-YX16A	750~880	7.5~8.8	597±40	7.5±0.5	≥1989	≥25.0	127±16	16±2
smco-YX16B	750~880	7.5~8.8	597±40	7.5±0.5	≥2386	≥30.0	127±16	16±2
sm2co17-YX18	800~930	8.0~9.3	637±40	8.0±0.5	≥1194	≥15.0	143±16	18±2

smco-YX18A	800~930	8.0~9.3	637±40	8.0±0.5	≥1591	≥20.0	143±16	18±2
smco-YX18T	800~930	8.0~9.3	637±40	8.0±0.5	≥1591	≥20.0	143±16	18±2
smco-YX18B	800~930	8.0~9.3	637±40	8.0±0.5	≥1989	≥25.0	143±16	18±2
sm2co17-YX20	900~980	9.0~9.8	637±40	8.0±0.5	≥1432	≥18.0	159±16	20±2
smco-YX20	900~950	9.0~9.5	≥670	8.5~9.2	≥1591	≥20.0	159±16	20±2
smco-YX20A	900~980	9.0~9.8	637±40	8.0±0.5	≥1989	≥25.0	159±16	20±2
smco-YX22	900~1030	9.0~10.3	653±40	8.2±0.5	≥1432	≥18.0	175±16	22±2
smco-YX22A	900~1030	9.0~10.3	653±40	8.2±0.5	≥1989	≥25.0	175±16	22±2
smco-YX24	950~1080	9.5~10.8	676±40	8.2±0.5	≥1432	≥18.0	191±16	24±2
smco-YX24A	1000~1100	10.0~11.0	676±40	8.2±0.5	≥1989	≥25.0	191±16	24±2
smco-YX26	1000~1130	10.0~11.3	357~516	4.5~6.5	413~556	5.0~7.0	207±16	26±2
YX26A	1000~1130	10.0~11.3	716±40	9.0±0.5	≥796	≥10.0	207±16	26±2
YX26B	1000~1130	10.0~11.3	716±40	9.0±0.5	≥1194	≥15.0	207±16	26±2
YX26C	1000~1130	10.0~11.3	716±40	9.0±0.5	≥1591	≥20.0	207±16	26±2
YX26D	1000~1080	10.0~10.8	≥732	9.0~10.5	≥2300	≥30.0	207±16	26±2
smco-YX28	1060~1180	10.6~11.8	357~516	4.5~6.5	413~556	5.0~7.0	223±16	28±2
smco-YX28A	1060~1180	10.6~11.8	763±40	9.6±0.5	≥796	≥10.0	223±16	28±2
smco-YX28B	1050~1150	10.5~11.5	≥750	9.4~9.8	≥960	≥12.0	223±16	28±2
smco-YX28C	1060~1180	10.6~11.8	763±40	9.6±0.5	≥1194	≥15.0	223±16	28±2
smco-YX30	1100~1200	11.0~12.0	438~597	5.5~6.5	454~597	5.7~7.5	238±16	30±2
smco-YX30A	1100~1200	11.0~12.0	≥560	7.0~8.5	≥716	≥12.0	238±16	30±2

Characteristics & application of SmCo permanent magnet

Curie Temp.	Tc	°C	800~850	Coeff. Of thermal expansion	C//	1/°C	$\sim 8 \times 10^{-5}$
Density	D	g/cm <sup>3</sup>	8.3~8.5		C⊥	1/°C	$\sim 11 \times 10^{-5}$
Recoil Permeability	μrec		1.00~1.05	Rigidity strength		N/m <sup>2</sup>	$\sim 1.5 \times 10^8$
Max. Working Temp.	Tmax	°C	350	Compress strength		N/m <sup>2</sup>	$\sim 8 \times 10^8$
Electrical Resistivity		Ω.Cm	$\sim 8.6 \times 10^{-5}$	Tensile strength		N/m <sup>2</sup>	$\sim 3.5 \times 10^7$
Vickers Hardness	Hv		500~600	Young's Modulus		N/m <sup>2</sup>	$\sim 1.2 \times 10^{11}$
Thermal conduct rate		W/mK	~12	Magnetization field Ha		kA/m	$\geq 1600$

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