

MATERIAL DATA SHEET

Revision Date – 19.08.2021

Revision Number – 5

Material/Trade Name – Alnico or Alcomax

1 - Substance Identification

Material/Trade Name -	Alnico, Alcomax, Hycomax
Material Type -	Cast or Sintered
Company -	Cermag Ltd
Address -	92/94 Holywell Road Sheffield S48AS
Telephone -	0114 2446136
Fax -	0114 2561769

2a – Cast Alnico 2 - Composition Weight %

Substance -	Al	8.0%
	Ni	24.0%
	Co	14.0%
	Cu	3.0%
	Fe	51%

2b – Cast Alnico 3 - Composition Weight %

Substance -	Al	8.5%
	Ni	24.0%
	Co	16.0%
	Cu	3.0%
	Fe	48.5%

2c – Cast Alnico 4 - Composition Weight %

Substance -	Al	11.0%
	Ni	26.0%
	Co	6.0%
	Cu	3.0%
	Fe	54.0%

2c – Cast Alnico 5 - Composition Weight %

Substance -	Al	7.8%
	Ni	14.0%
	Co	24.5%
	Cu	3.0%
	Fe	50.7%

2e – Cast Alnico 6 - Composition Weight %

Substance -	Al	8.0%
	Ni	14.2%
	Co	24.5%
	Cu	3.0%
	Ti	1.5%
	Fe	48.8%

2f – Cast Alnico 8 - Composition Weight %

Substance -	Al	5.6%
	Ni	20.0%
	Co	33.5%
	Cu	3.0%
	Ti	7.8%
	Fe	30.1%

2g – Sintered Alnico 8 - Composition Weight %

Substance -	Al	5.6%
	Ni	20.0%
	Co	33.5%
	Cu	3.0%
	Ti	7.8%
	Fe	30.1%

3 – REACH

Alnico / Alcomax materials contain no SVHC (Substances of Very High Concern) either in ingredients or in preparation

4 – Hazard Identification

Alnico or Alcomax is not listed in EH40 Occupational Exposure Limits or other listings of hazardous or toxic materials.

The handling of Alnico / Alcomax Magnets in the clean unmagnetised state causes no hazards to health. Hazards arise when they are ground or magnetised

Fine powders and grinding slurry may cause irritation to eyes, skin & respiratory systems.

Only trained personnel should handle magnetised magnets.

Food & drink should be prohibited in the vicinity of the machining and finishing operation.

Flash Point - None

5 – First Aid Measures

Inhalation - Remove to fresh air area
Inform first aider

Eyes - Flush dust from eyes with water
Inform first aider

Skin - Wash with soap & water
Inform first aider

Ingestion - Give plenty of water to drink
Do not induce vomiting
Inform first aider

6 – Fire Prevention

Non Combustible

7 – Handling & Storage of Magnetised Products

Due care should be taken when handling fully magnetised material as physical injury may occur through entrapment of body parts caused by the inadvertent attraction of magnetised material to other similar or ferro-magnetic material.

Close proximity to the magnetic field from magnetised material may effect the operation of heart pacemakers.

8a – Properties (Magnetic)

Cast Alnico

	Br (Gauss)	bHc (Oersted)	iHc (Oersted)	BH Max (MGO)	Magnetising Force (Oersted)
AlNiCo 2	7,200	500	525	1.55	3,000
AlNiCo 3	7,000	475	500	1.4	2,000
AlNiCo 4	5,500	720	750	1.35	2,000
AlNiCo 5	12,600	650	663	5.4	3,000
AlNiCo 6	11,500	750	750	4.5	3,000
AlNiCo 8	9,000	1,600	1,625	5.6	6,250
AlNiCo 9	11,000	1,500	1,580	10.5	8,000

Sintered Alnico

	Br (Gauss)	bHc (Oersted)	iHc (Oersted)	BH Max (MGO)	Magnetising Force (Oersted)
AlNiCo 2	7,000	600	600	1.6	3,000
AlNiCo 3	7,000	475	500	1.4	2,000
AlNiCo 4	5,500	720	750	1.35	2,000
AlNiCo 5	12,500	650	663	5.4	3,000
AlNiCo 6	10,000	720	750	3.5	3,000
AlNiCo 8	8,000	1,380	1,400	4.75	6,250
AlNiCo 9	11,000	1,500	1,580	10.5	8,000

8b – Properties (Thermal)

	Reversible Temperature Coefficient of Br (%change/°C)	Curie Temperature (°C)	Maximum Working Temp (°C)
AlNiCo 2	-0.02	810	450
AlNiCo 5	-0.015	860	525
AlNiCo 6	-0.015	860	525
AlNiCo 8	-0.015	860	550

8c – Properties (Physical)

	Density (g/cm ³)	Tensile Strength (PSI)	Modulus of elasticity (PSI)	Hardness (Rockwell)	Coefficient of thermal expansion (10 ⁻⁶ per °C)	Electrical Resistivity at 20°C (Ohm-cm x 10 ⁻⁶)
AlNiCo 2	7.0	3000	7000	45	12.4	65
AlNiCo 5	7.3	5400	10500	50	11.4	47
AlNiCo 6	7.3	23000	45000	50	11.4	50

AlNiCo 8	7.3	10000	30000	55	11.0	53
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9 – Stability and Reactivity

Stable at all temperatures

10 – Disposal Considerations

Do not dispose into watercourses

Use only licensed contractors

Dispose in accordance with Special Waste Regulations 1996

11 – Transport Information

Not Classified as Hazardous for Transportation by air. Magnetic fields within 0.00525gauss at 15 feet, as legislation states.

This data sheet needed is to accompany our commercial invoice with freight.

12 – Regulatory Information

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|-------------------------|---|
| 1 – Risk & Safety - | Avoid Entrapment of Body Parts
Dispose of material in a safe way |
| 2 – Other Regulations - | Health & Safety at Work Act 1974
Environmental protection Act 1990
Special Waste Regulations 1996 |