

TECHNICAL DATA

Amorphous Magnetic Shielding Tape

Date: October 16th. 2006

Charged

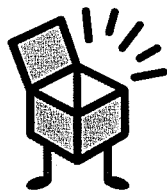
T. Yoshimura

Checked

J. Morigama

Approved

J. Shonowaki



**Materials
Mag!c**



Hitachi Metals, Ltd.

Tottori Works

Amorphous Magnetic Shielding Tape “MS-AM”

INTRODUCTION

As electronic devices are widely used, and the numbers of the devices and users have been expanding, the issues of electro magnetic that interfere to other apparatus and human bodies are emerged. Consequently, the demand for EMI components is increasing.

Hitachi Metals "MS-AM" tape, made of Co-based amorphous alloy which has excellent magnetic properties over a wide frequency range. “MS-AM” is suitable for EMI prevention of electronics devices such as cellular phone, personal computer, electric cables, and protection of magnetic card etc.

FEATURES

- (1) “MS-AM” has excellent magnetic shielding effect.
- (2) Small deterioration in shielding effect by bending, cutting or punching
- (3) Light weight and flexible, and easy to handle
- (4) Can be applied on curved surface and cut or punched in various shapes

STRUCTURE

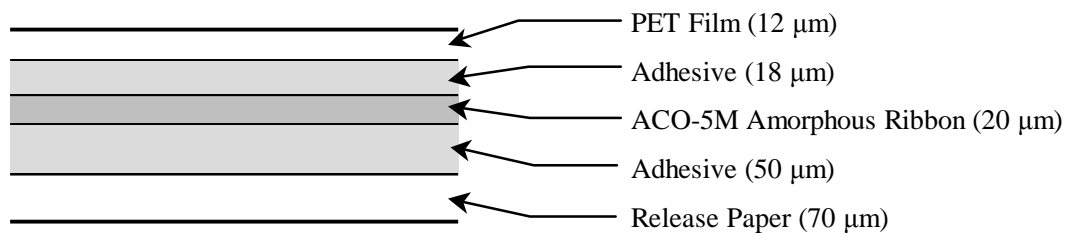


Fig.1 Example of cross section structure

TYPICAL PROPERTIES OF AMORPHOUS RIBBON

Table 1 Physical metallurgies and machine characteristics

Material	Density [g / cm ³]	Specific Resistance [× 10 ⁻⁶ Ω·cm]	Thermal Conductivity [W / m ² K]	Crystallization Temperature [°C]	Tensile Strength [MPa]	Vickers Hardness
ACO-5M	7.7	1.3	12	540	1500 ~ 2000	900

Table 2 Magnetic Properties

Material	Saturation Flux Density [T]	Relative Permeability		Currie Temperature [°C]	Magnetostriction
		(1 kHz)	(10 kHz)		
ACO-5M	0.6	21,000	8,000	210	~ 0

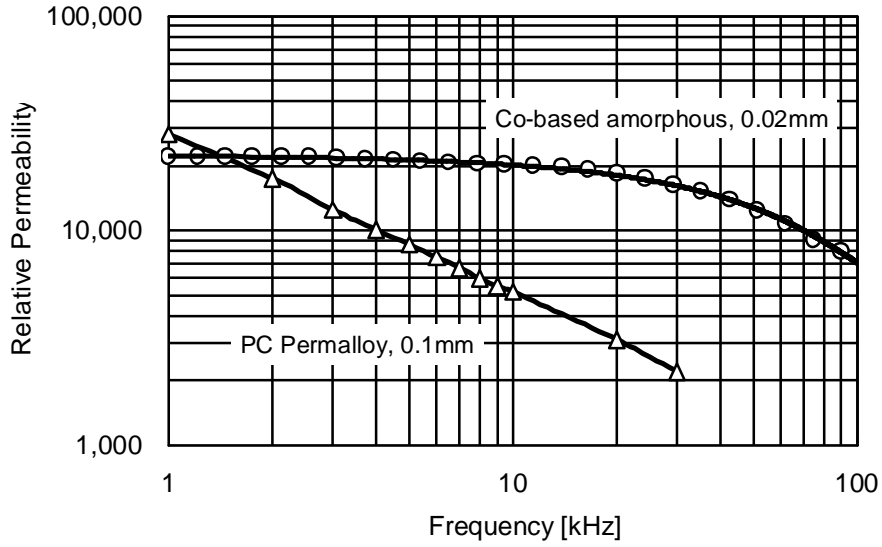


Fig.2 Comparison of Relative Permeability

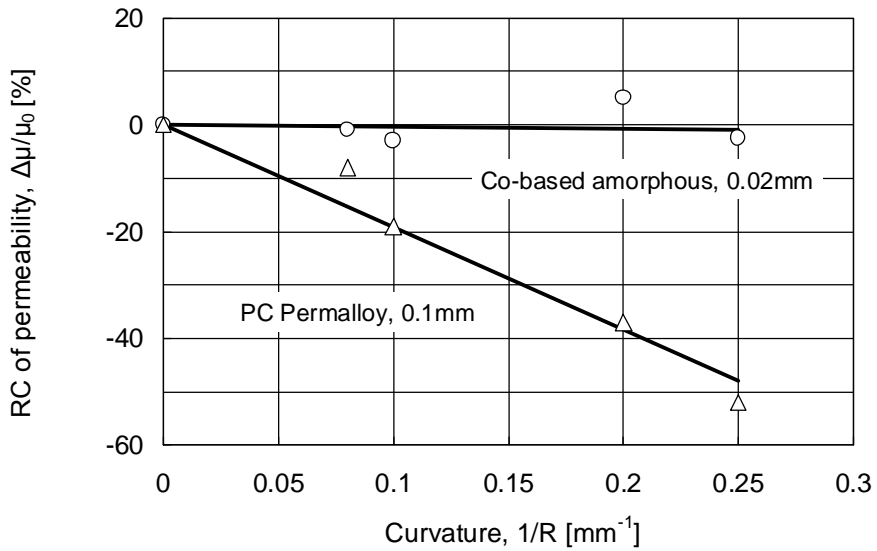


Fig.3 Permeability Rate Change of Before/After bending

Warnings and Precautions

Before using this product, please be sure to read and follow the precautions below.



This is a hazard warning sign.

Please observe the items after this sign to avoid possible injury or death.

Handling

- (1) Do not drop the product. The impact of drop may change the magnetic properties, give damages or increase self-heat-generation of the product.
- (2) Keep the product away from magnet. Placing the product close to magnet may deteriorate its magnetic properties, and the product may get damaged by the attraction of magnet
- (3) Do not touch with bare hands when the product get damaged. Pieces of the product could harm you physically.



CAUTION

Designing



WARNING

- (1) When designing a component using this product and applying the designed components in any system, use this product only in the guaranteed range specified by Hitachi Metals, Ltd. Do not use the product beyond guaranteed values specified by Hitachi Metals, Ltd. Hitachi Metals, Ltd. will not be responsible for any damage or accident when this product is used beyond guaranteed values specified by Hitachi Metals, Ltd. Even when the product is used within the specification given by Hitachi Metals, take appropriate measures for system, such as failsafe, to avoid any accident resulting in any bodily injury and/or property damage. It is the responsibility of a user to take such measures.



WARNING

- (2) This product is designed to be used for general electronic devices (e.g. office machinery, communication devices, measurement devices, house hold appliances, etc.). Performance and safety of this product for applications in the special fields which require particularly high reliability and quality, and whose application is potentially life threatening or could lead to physical harm in the event of malfunction is not confirmed. Such fields may include: space science, aviation, nuclear energy, combustion control, transportation, safety devices and medical equipment. Be sure to examine the performance and safety when the product is used for these applications, and take appropriate measures for system, such as failsafe, to avoid any accident resulting in any bodily injury and/or property damage. It is the responsibility of a user to take such measures.
- (3) Take appropriate measures, such as using an over voltage protective device to prevent high voltage surge from being applied to the product if direct lightning surge, inductive lightning surge, switching surge, etc. is likely to applied to this product. This product may deteriorate in function when high-voltage surge is applied. It is the responsibility of a user to take such measures.
- (4) Do not use this product in devices under massive radiation, such as neutron rays. This product is not a radiation-proof and may result in deterioration of this product.
- (5) In no event shall Hitachi Metals, Ltd. be responsible for any claim, loss or damages caused by defect in design by user.

Handling Environment and Condition

Do not use the product under the following environment;

- 1) In fluid such as water, oil, chemicals, organic solvent etc..
- 2) Locations subjected to direct sunlight, open air, and/or dust.
- 3) In corrosive atmosphere such as salt air, Cl₂, H₂S, NH₃, NO_x, SO₂, O₃, etc.
- 4) Locations subjected to high temperature and/or high humidity.
- 5) Locations near flammable gases.
- 6) Locations near heat generating equipment(s).

Storage

Do not store the product where water or other liquids splash directly or in dewing place to prevent change of its performance.

Disposition

- (1) When you scrap the product, dispose it as an industrial waste.
- (2) Disposition, reprocessing or other extra process shall be arranged at your expense.