COMPLETE SPECIFICATION.

NON-LINEAR DISCS FOR USE IN LIGHTNING ARRESTER/SURGE DIVERS ORS.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH, RAJIV MARG, NEW DELHI-1, INDIA, AN INDIAN REGISTRATION BODY INCORPORATED UNDER THE REGISTRATION OF SOCIETIES ACT (ACT XVI OF 1860).

The following specification particularly describes and specifies the nature of the invention and the manner in which it is to be performed.

This invention relates to improvements in or relating to lightning arresters/surge diverters.

Hitherto it has been customary to use Silicon Carbide for making the non-linear type lightning arrester discs and surge diverters. This has several disadvantages such as:

(i) Only a special grade of silicon carbide is useful for this purpose; (ii) At present large scale production of silicon carbide in India is not known and therefore the material is to be imported.

This invention is characterized by:

(iii) The processing conditions are severe involving high temperature and high pressure treatments; and (iv) The cost of the material is comparatively very high.

The present invention broadly consists in replacing silicon carbide by linoleum material which is available naturally, abundantly in India and is very cheap. The following examples illustrate the nature of the invention:

The processing conditions of this method are very easy and possible even in small workshops.

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Dated this 26th day of October, 1966.

Price: TWO RUPEES.
The invention includes within its scope the invented non-linear discs when used in a lightning arrester/surge diverters.

Thus, naturally occurring ilmenite is proved a suitable material for the production of non-linear lightning arresters and surge diverters. Whereas this process comprises of an operation in common with the older processes, namely the metal spraying of the flat surfaces of the finished products for the purpose of making good electrical contacts, all other factors such as the utilization of a new raw material, binder, composition and the mode and technique of production are all entirely new and different.

The non-linear type lightning arrester discs are made by mixing ilmenite of suitable particle size with a calculated amount of binder of suitable composition and form, pressed into blocks of specified sizes and then heat treated in furnace at a temperature not exceeding 1000°C, for three hours or less. Among the inorganic binders suggested are kaolin, sodium silicates, plaster of paris, kieselguhr, etc. either alone or mixed with one another. The composition and processing conditions depend on particle size type and size of disc produced. Particle size used may vary between 40 and 180 mesh and the typical binder composition is 5 to 10 per cent. sodium silicate or 5-13 per cent. plaster of paris, with or without 0.5 to 1 per cent. kieselguhr or kaolin. The pressure applied varies from 5-60 tons per square inch and the curing temperature does not exceed 1000°C, for a period less than three hours. The cured samples are metal sprayed on the flat surfaces by metal spraying gun.

The main advantage of the invention are:

(i) Utilization of indigenous, abundantly and cheaply available ilmenite occurring as raw material with or without further treatment; (ii) The processing conditions are less severe, very cheap and using less expensive equipment; (iii) The binders are also available in plenty and variety and cheap.

We claim:

1. Non-linear discs for use in lightning arrester/surge diverters comprising metal sprayed flat discs comprising a raw material and a binder characterised in that the raw material consists of naturally occurring ilmenite.

2. A process for making the non-linear discs claimed in Claim 1 which consists in mixing ilmenite particles with binder, pressing into blocks, and heat treating in a furnace at a temperature not exceeding 1000°C for 3 hours or less.

3. A process as claimed in Claim 2 wherein a binder such as kaolin, sodium silicates, plaster of paris, kieselguhr or the like, either alone or mixed with one another is used.

4. Non-linear discs as claimed in Claim 1 when used in a lightning arrester/surge diverters.

5. A process for making non-linear discs for use in lightning arrester, surge diverters substantially as here-ibfore described.

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