



SURELY BEST SAFETY

Mfrs. All type Chemical Earthing Electrodes



SBS POWER & EARTHING SOLUTIONS

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Surely Best Safety

SBS Power & Earthing Solutions

Electrical Earthing :

Your questions –Our answers

The Basics

OK. Let us answer your questions: You have heard a lot about this stuff. What exactly is it? We hope to give you an easy explanation of what Chemical Earthing is, and we will answer the following most asked questions.:

Q1 What is Earthing system?

The main reason for doing earthing in electrical network is for the safety. When all metallic parts in electrical equipments are grounded then if the insulation inside the equipments fails there are no dangerous voltages present in the equipment case. If the live wire touches the grounded case then the circuit is effectively shorted and fuse will immediately blow. When the fuse is blown then the dangerous voltages are away.

Q2 Purpose of Earthing

(1) Safety for Human life/ Building/Equipment

- To save human life from danger of electrical shock or death by blowing a fuse i.e. To provide an alternative path for the fault current to flow so that it will not endanger the user
- To protect buildings, machinery & appliances under fault conditions.
- To ensure that all exposed conductive parts do not reach a dangerous potential.
- To provide safe path to dissipate lightning and short circuit currents.
- To provide stable platform for operation of sensitive electronic equipments i.e. To maintain the voltage at any part of an electrical system at a known value so as to prevent over current or excessive voltage on the appliances or equipment.



(2) Over voltage protection

Lightning, line surges or unintentional contact with higher voltage lines can cause dangerously high voltages to the electrical distribution system. Earthing provides an alternative path around the electrical system to minimize damages in the System.

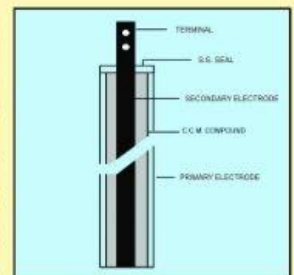
(3) Voltage stabilization

There are many sources of electricity. Every

transformer can be considered a separate source. If there were not a common reference point for all these voltage sources it would be extremely difficult to calculate their relationships to each other. The earth is the most omnipresent conductive surface, and so it was adopted in the very beginnings of electrical distribution systems as a nearly universal standard for all electric systems.

Q3 What exactly is Chemical Earthing?

It is totally different from traditional charcoal and salt earthing. In the chemical earthing the electrode is pipe of different diameter and appropriate length either GI or Copper is filled with graphite which is HEAT ABSORBANT and withstands high temperature upto 2500 degree centigrade (unlike charcoal which burns into ash above 400 degrees centigrade and salt also dries itself in course of time.



In fact the traditional earthing becomes less efficient and ineffective because charcoal burns into ash and salt vanishes since both parameters of Heat absorbing and maintaining of Humidity is lost. This earthing therefore needs periodic maintenance like watering etcetera) In case of chemical earthing the electrode is thus surrounded by BACK FILL COMPOUND HIGHLY HYGROSCOPIC MATERIAL, ALUMINIUM SILICATE which absorbs water and does not dissolve in the water and maintains the required level of wetness of soil. Even a small rainfall of 2.5 CM in the catchment area is sufficient to retain required level of moisture as it absorbs from the soil itself. The chemical Earthing is therefore FIT & FORGET and NEEDS NO MAINTENANCE

Q4 What Causes Low Ohmic values?

Low ohmic values will solely depend upon the conditions of soil i.e SOIL RESISTIVITY which is different for variety of soils. The ohmic values will be low in good soil rather than ROCKY /SANDY soil. The different values of soils are given explicitly in IS 3043 (please ask soft copy from us). The IS 3043 also describes the method of treatment of soil But the methods generally followed are as under:

Treatments to for minimizing Earth resistance

- a. Remove Oxidation on joints and joints should be tightened.
- b. Poured sufficient water in earth electrode. (watering the bore prior to installation)
- c. Used bigger size of Earth Electrode.
- d. Electrodes should be connected in parallel.
- e. Earth pit of more depth & width- breadth should be made

Q. 5 What is suggested allowable earth resistance

Maximum allowable Earth resistance

Major power station = 0.5 Ohm.

Major Sub-stations = 1.0 Ohm

Minor Sub-station = 2 Ohm

Neutral Bushing. = 2 Ohm

Service connection = 4 Ohm

Medium Voltage Network = 2 Ohm

L.T. Lightning Arrestor = 4 Ohm

L.T. Pole = 5 Ohm

H.T. Pole = 10 Ohm

Tower = 20-30 Ohm



Q.6. Why Should I Improve earthing values?

The earthing values as mentioned above are accepted in general, but in case of special applications like Electro Static Discharge (ESD) or earthing of sensitive electronic equipments, the earthing system can be designed by us to suit customers specific technical requirements. The earthing resistance value per individual electrode is normally accepted at less than 5 ohms

Q.7 How Do I decide the right size and type of earthing system?

The size of the earthing electrode is determined by the total system design parameters of the installation.

1. The connected load, mainly the capacity of the

transformer or DG.

2. The fault current of the installation in terms of KA. It can be calculated at impedance level of 5%, the fault current of 100 KVA transformer will be therefore 2800 Amps. Similarly the fault current can be determined for different types of loads and the size and quantity of earthing electrodes can be decided in consultation with us.

3. The duration of fault will depend on the back up protection of the installation. Usually the fault current expected /accepted in the most of the installation is normally less than 1 sec

Q.8. How Long Will My Earthing Systems be Guaranteed?

The Earthing systems supplied and installed by us are Warranted by us for a period of 24 months from date of installation or 30 months from date of supply. Longer warranty periods can be provided in special cases by mutual consent.

Q.9 Does it need any regular maintenance on my part.

The earthing systems supplied by us are maintenance free. The proper upkeep of the system is the responsibility of the user. The upkeep is to keep joints and connections rust free and tight and mechanical/external damage to the connecting strips due to normal use and wear and tear. It is suggested that PIT COVERS to be used for covering the pit from getting filled with MALBA. The PIT COVERS are available from us at EXTRA PRICE.

Q.10 What is the Next Step?

Feel free to call us, e-mail us, and continue to work with us about new developments at our end. We would be happy to talk to you about your specific application. We assure you of timely deliveries

SBS GBFC (BACK FILL COMPOUND)

Characteristics & Features:

- Highly efficient, more Conductive and exhibits anti corrosive properties.
- Reduces Soil resistivity and lowers the Ohmic values of Electrode
- Absorbs Moisture from the Earth and retains for a long period of time.
- Eliminates the use of Sodium chloride, Calcium chloride, Cu sulphates and other common salts.
- Eco friendly, safe and reliable.
- Much stretched life.



Technical Specifications

Group A- GI PIPE +GI STRIP

S.No.	Model No.	Dia (mm)	Length (mm)	Conductor size(mm)	SBS BFC	Terminal dia (mm)	Capacity
1.	SBS48/2/G	48	2000	25x3	25 kg	12	50 KVA
2.	SBS48/3/G	48	3000	32x3	35 kg	12	75KVA
3.	SBS58/2/G	58	2000	25x6	25 kg	12	150KVA
4.	SBS58/3/G	58	3000	32x6	35 kg	12	350 KVA
5.	SBS76/2/G	76	2000	40x6	25 kg	14	850 KVA
6.	SBS76/3/G	76	3000	50x6	35 kg	14	1750 KVA

Group B-GI PiPE+ Copper Strip

S.No.	Model No.	Dia (mm)	Length (mm)	Conductor size(mm)	SBS BFC	Terminal dia (mm)	Capacity
1.	SBS48/2/CG	48	2000	25x3	25 kg	12	200 KVA
2.	SBS48/3/CG	48	3000	32x6	35 kg	12	350KVA
3.	SBS58/2/CG	58	2000	25x6	25 kg	12	500KVA
4.	SBS58/3/CG	58	3000	32x6	35 kg	12	1500 KVA
5.	SBS76/2/CG	76	2000	40x5	25 kg	14	2000KVA
6.	SBS76/3/CG	76	3000	50x6	35 kg	14	3000 KVA

Group C-Cu PiPE+ Copper Strip

S.No.	Model No.	Dia (mm)	Length (mm)	Conductor size(mm)	SBS BFC	Terminal dia(mm)	Capacity
1.	SBS40/2/C	40	2000	25x3	25 kg	12	450 KVA
2.	SBS40/3/C	40	3000	25x3	35 kg	12	600KVA
3.	SBS50/2/C	50	2000	25x6	25 kg	12	1000KVA
4.	SBS50/3/C	50	3000	25x6	35 kg	12	2000 KVA
5.	SBS76/2/C	76	2000	40x5	25 kg	14	3000KVA
6.	SBS76/3/C	76	3000	50x6	35 kg	14	5000 KVA



Trust us **Surely Best Safety**

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