

## Runfold Plastics Ltd.

### Protection shrouds for substation and distribution lines



Runfold Plastics has, for 25 years, provided flexible mouldings for protection and insulation of asset in substations and line distribution against environmental conditions and wildlife.

Network reliability for the electrical generating companies is a priority if they are to avoid high maintenance costs and dissatisfied customers through unplanned outages. Runfold Plastics has seen these problems and, with its unique in house dip moulding process and electrical formulated materials, we can prevent these costs that are caused by birds, vermin, blown debris and vandals. This can be achieved by the easy installation of custom profiled shrouds for all applications, from live terminations on poles to ground mounted distribution equipment.

### **Runfold Plastics Ltd electrical grades for overhead shrouds**

In order to meet the specification requirements for this industry we set about the task of listening to the customers from the utility generators and the equipment manufacturers. We ascertained what is required in terms of performance within the industry. The result was to provide materials that could provide a combination of electrical resistance, high temperature, fire retardant resistance to fungal growth and long term UV exposure, as well as a product that was easy to assemble onto electrical equipment and easily removable for inspection.

### **What are our Electrical Grades?**

To meet the long term UV exposure for outside applications our electrical grade has UV inhibitors which are used for marine products such as fenders which have been tested in areas such as Florida. The electrical resistance material formulation is based upon high temperature additives. The base material is PVC which has the flexibility for these applications. Due to concerns over long term performance as a result of the activity of Fungal and Extracellular lipases, a new grade of material has been developed which is resistant to this activity.

### **Test method of the materials**

The requirement of these shrouds is to provide protection against stray pieces of debris, wildlife, most notably squirrels, and vandals. Therefore the test methods used simulate an exact condition that would be seen in the field of operation. One example test, is the resistance of our material for a potential large bird wing span across two busbar terminals. The resistance for such test has measured at 35 KV. (Copy on request). Other tests and specific testing can be carried out in order to meet any customer's specific requirements. We are therefore able to offer reassurance to our customers that such conditions have been tested within the field of application.

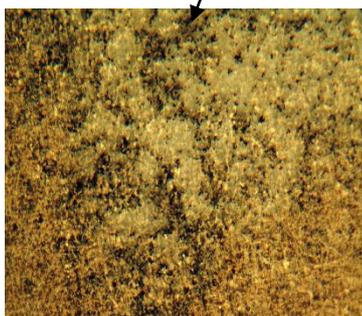
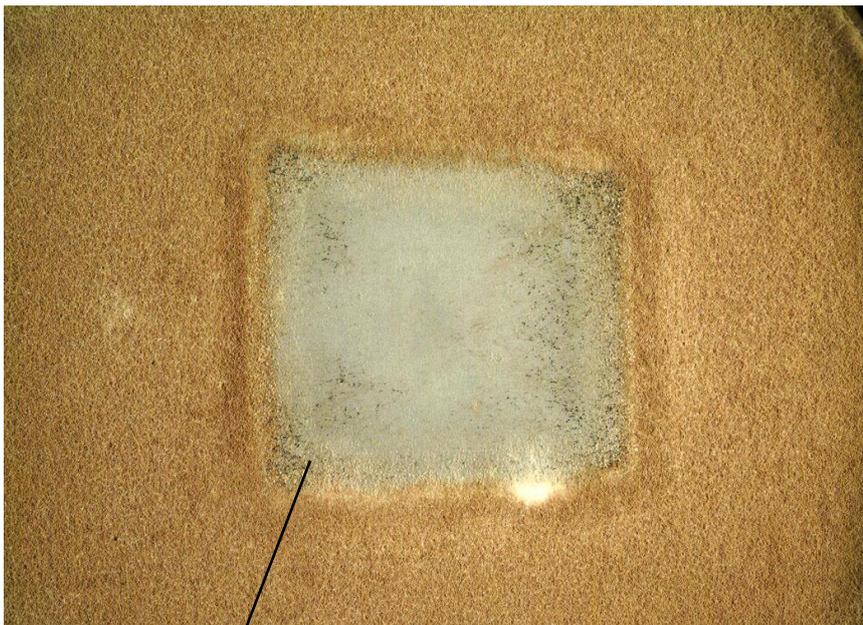


### Electrical grade of Materials Available

| Grade           | Description  |
|-----------------|--|
| <b>Black 9</b>  | A general purpose grade used for shrouding of cables. RoHS compliant.  |
| <b>Black 18</b> | A high temperature grade designed for low voltage areas. RoHS compliant.   |
| <b>Black 38</b> | A high temperature grade designed for low voltage areas with a 50 shore hardness. Fire retardant to UL 94 Vo. Approved to new EN requirements. RoHS compliant.   |
| <b>Red 27</b>   | A high temperature bright red colour for busbar insulation and protection. RoHS compliant.   |
| <b>Grey 40</b>  | Anti-fungal grade of material for long term exposure up to 15 years. UV resistant grade designed for outdoor use and electrical resistance for a potential animal strike up to 35 KV. Fire retardant UL 94 V1. RoHS compliant. |

### Surface Appearance of Control Material after 5 weeks Grey 32

**Sample 1:** Leached to simulate 15 years service

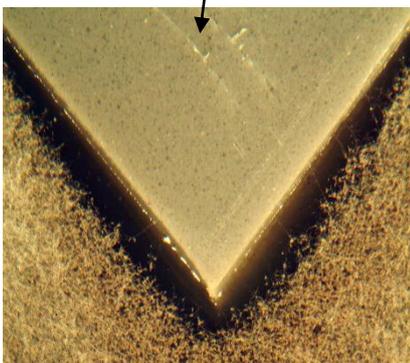
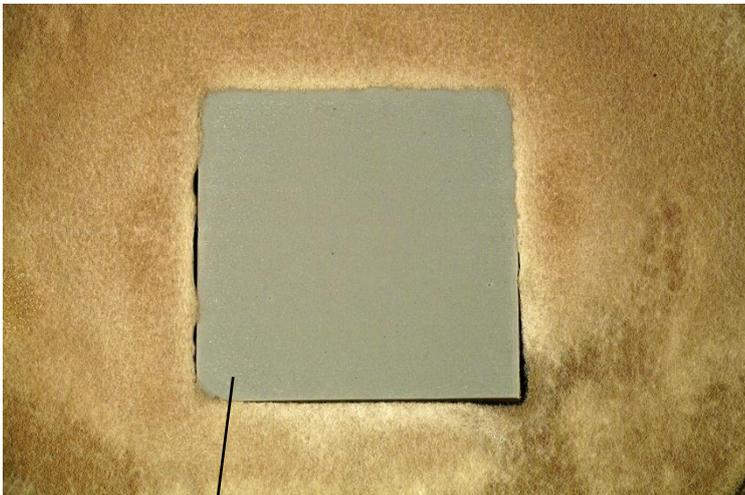


Fungal growth over control material

Materials currently used within the market can be affected by deterioration due to fungal growth and extracellular lipases. In many instances fungal growth results in loss of mechanical properties and this biological growth on shrouds have been attributed with failure in service through electrical flash over due to the presence of surface slime. Growth will also develop inside and outside of the shroud, although more conspicuous on the outer surface, conditions within the shroud are highly conducive to fungal growth due to presence of condensation, available nutrient and partially protected from drying. The control test sample was leached in water to simulate 15 years in service life. As sample 1 indicates there is a large amount of fungal growth over the sample which could cause a flash over concern due to the surface slime.

### Surface Appearance of New Grey 40 Material after 5 weeks

**Sample 2:** Leached to simulate 15 years service



**Result:** No fungal growth on new protected material Grey 40.

Our new formulated material Grey 40 shows no growth over the surface. Material was subjected to rain leaching to simulate 15 years in service life. The new material will be fungal resistance providing the end user quality and assurance of any potential flash over due to surface slime.



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### Application Areas

- Outdoor Terminations
- Transformers Bushing
- Circuit Breakers
- Capacitors
- Busbar Systems
- Creepage Extenders
- Booster Sheds
- Cable Joints
- Auto Reclosers
- Pole Mounted Transformers
- Bellow Protectors

### Product Profiles

Due to the wide variety of equipment requirements, we have a comprehensive range of customised shrouds. For specific application requirements please contact us.

### Benefits of using Runfold Insulation and Protection Shrouds

- Dip moulding manufacturer
- In-house tool room
- 30 years experience supplying to the electrical market
- Design service
- Fast installation compared to insulation tape
- Large range of existing shrouds
- Proven material application knowledge
- Each part can be application tested to customers requirement
- Shrouds are re-usable for inspection
- Customised design
- Excellent mechanical and chemical resistant properties
- Fire retardant grades
- No water traps compared to insulation tape.



### Typical applications of the Runfold Plastics Protection Shrouds

