

# Green Goo continues to be a nuisance to householders and to electrical installers

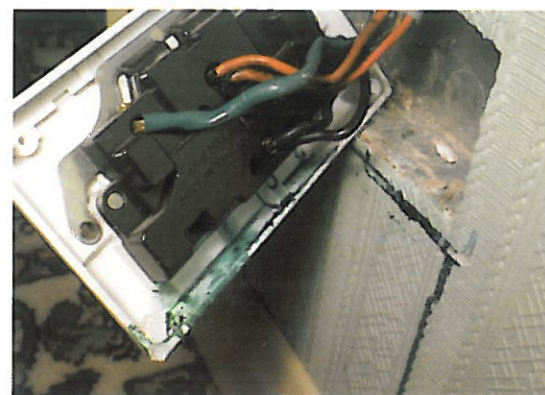
**The phenomenon commonly referred to as 'green goo' is one that has affected electrical installations ever since the late 1960s and it seems that it is a problem that could be with us for some time to come.**

A recent increase in the number of reports received by the Electrical Safety Council indicates that the problem caused by green goo remains ever-present. The reasons for the increase in reports may be related to the economic downturn, in particular the growing trend for householders to improve their home rather than to move house.

## What is green goo?

The insulation on flat twin and earth cable is made from polyvinyl chloride (PVC) to which a plasticiser, di-isocetyl phthalate is added during manufacture to make the cable relatively pliable to aid cable installation. Green goo is a side effect formed during the chemical reaction between the plasticiser of the insulation and the copper conductor that occurs when the conductor temperature nears its maximum operating temperature (typically 70 °C). At such temperatures the plasticiser can leach from the cable causing the insulation to become sticky to the touch initially but as the leaching continues the cable insulation becomes hard and brittle.

The problem was most prevalent between 1965 and 1971 when an antioxidant was introduced into the manufacturing process. Cable manufactured since the mid 1970s does not have the same inherent defect.



## Effects on electrical insulation

If the green goo is restricted to that of leaching of plasticiser then evidence suggests that, although unsightly, the electrical integrity of the cable insulation will not be reduced if the cable is not disturbed. However, if the green goo is severe it can result in the cable insulation becoming brittle whereby the insulation quality may be significantly impaired, which could lead to electrical faults, including an increased risk of electrical fires. Consequently, where green goo is discovered an insulation resistance test should be carried out to determine the extent of the affect on the cable insulation.

The green goo may also have detrimental effects on accessories (in appearance and functionality terms) and their decorative finishes.

## Solutions

Unfortunately, where an electrical installation is seriously affected by green goo, the only practicable solution is to rewire the premises and replace any related affected electrical equipment. Simply replacing affected electrical accessories and equipment and re-decorating is likely to be only a temporary improvement measure and the green goo will evidently re-occur. The Electrical Safety Council advises that all such remedial work is undertaken by a registered electrician.

## Health risks

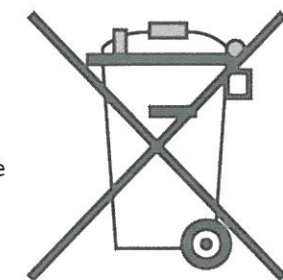
Contrary to belief, green goo is not a carcinogen. However, being in contact with it may lead to possible ill-health effects, such as skin dermatitis and/or rashes. The advice from the Health and Safety Executive is that precautions should be taken to prevent skin contact and ingestion of the substance. This can be easily achieved through the use of protective gloves and clothes, such as disposable coveralls with hood to prevent contamination of clothing and hair, for example. Such precautions should be especially followed while removing and disposing of any affected cable. Consideration should also be given to ensuring

that those persons working with affected cable adopt good personal hygiene practice by washing their hands before eating or drinking to prevent inadvertent contact and/or ingestion of green goo.

## Environmental considerations

Electrical installers should determine whether the requirements of the *Waste Electrical and Electronic Equipment Regulations (WEEE)* are applicable when disposing of affected cables or accessories (socket-outlets, lighting switches or ceiling roses, for example). The 'crossed out wheellie bin' symbol found on many electrical items means that they should not be put with normal household rubbish. Instead, take the affected waste to a recycling facility that accepts electrical products.

Although electric cable does not generally fall under the requirements of the *WEEE Regulations* it should be recycled safely. Where doubt exists on how to dispose of electrical and electronic equipment contact should be made with your local authority who will be able to advise you on how safely to dispose of the item and provide you with the location of your nearest recycling centre.



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