



# Safety Alert

**INCIDENT TITLE:** Coffee Machine Socket Outlet Burnt Terminal

**TIME AND DATE OF INCIDENT:** 11 September 2019

## INCIDENT DETAIL

The 20amp socket outlet supplying electricity to a commercial barista-type coffee machine was found to have a severely damaged phase terminal. This terminal was heat damaged due to a loose connection in the plug. This damage was discovered by an electrician checking the machine prior to being relocated.

Had this damage not been discovered, there was the risk of a fire occurring or the creation of an electrical shock hazard.

The socket outlet was correctly rated for the current draw of the coffee machine.

Of note in this incident is the coffee machine had not been tested and tagged in accordance with AS/NZS 3760.



## PHOTOGRAPHS



## IMPORTANT INFORMATION

The loose terminal in the plug has been attributed to a phenomenon where a terminal screw can loosen over time due to thermal cycling.

Appliances such as coffee machines that cycle their current draw for significant periods can create a heat build-up in the supply cable and associated fittings when operating.

This thermal cycling of a termination creates voids leading to loose connections, which cause high-resistance terminations that get progressively worse over time.

Had the termination been loose from the original installation, a failure would likely have occurred much sooner. This coffee machine was in daily use over the past few years without incident.

Thermal cycling can be exacerbated using electrical fittings with small contact patches in the plugs and sockets such as those used in this installation. These domestic-type fittings with smaller contact areas are often installed over industrial-type fittings for economic reasons.

## BEST PRACTICE

Use electrical fittings with a larger contact area such as industrial-type fittings.

## IMMEDIATE INTERIM ACTIONS

Check all coffee machines to ensure plugs and socket outlets are in a good state of repair. A check of terminations should also be performed. This requires the services of a suitably qualified electrical tradesperson.

Where domestic-type fittings are used, an upgrade to industrial-style fittings is recommended. This requires evaluation on a case-by-case basis.

This Safety Alert is issued by the Corporate Safety & Health Team. For further information please contact:

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