

KiwiColour® Technical Bulletin: Swarf

What is Swarf?

Swarf is the term given to fine metallic filings arising from cutting or piercing operations. Steel swarf will rust immediately on reaction with oxygen and water to produce a stain that is often mistaken for rusting of the substrate and distract from the finished appearance of the product. If swarf is not immediately cleaned off from the surface of pre-painted steel products, damage can appear either as localised rust stains or as fine scratches from swarf embedded in footwear. Such damage is avoidable but is the result of poor fixing practice or can be the result of the work of other trades.

Types of Swarf

There are several different types of swarf. The most common swarf left on metal roof sheeting is that left as a result of using self drilling screws, which consist of helical shaped coils and small strips. This local type of swarf should be regarded as a necessary part of the roofing process and can be easily removed by the worker that creates it, by regularly cleaning of the product with a soft nylon brush.

Fresh swarf stains are characterised by small red-brown coloured areas with a central dark spot (the steel particles). The surface will feel like sandpaper, and the particles may be lifted with a finger nail. An old swarf stain will appear as a brown stain, the steel particle having corroded away, and the surface will be smoother.

Prevention

Prevention of swarf staining is the responsibility of the installer. Sheets cut on site should where practicable be cut on the ground with the exterior colour finish of the pre-painted sheet facing downwards. **Do not** cut over the top of other pre-painted products, where debris may fall onto other sheets.

The use of power nibblers provides a clean cut, but can produce a metal cut out that can become embedded in the soles of footwear of persons

working on the roof and cause damage to the surface of the pre-painted product. Be sure to clean up this type of swarf as it's produced.

Power shears do not produce swarf. Swarf produced by friction cutting or abrading equipment consists of fine metal particles, which have a large area of exposed steel and therefore corrode very readily.

Friction cutting equipment by definition produces heat, which destroys the metallic and paint coating in the vicinity of the cut. This method of cutting is unacceptable and material cut in this manner will not be covered by our KiwiColour® warranty.

A common cause of swarf complaints arise because other trades people have used grinding equipment in the vicinity of a newly completed roof. In this case ensure the affected areas are cleaned immediately.

Other debris including rivet stems, nails, screws, broken drill bits, tools and used sealant cartridges should all be cleaned from the roof and guttering to prevent any future damage. For best practice use power shears, guillotines and hand snips as these do not produce swarf and in skilled hands are capable of cutting any shape required for the installation of metal cladding.

To ensure you get the best possible life expectancy out of your KiwiColour® product, ensure you get a fully qualified professional installer to carry out your project.

Safe removal of swarf

The roof should be swept, rinsed or blown down progressively to remove loose particles. Maximum care should be taken when attempting to detach swarf that has become stuck; this can be done, but do not attempt any action that is likely to remove the paint or metallic coating. Damage to this coating may lead to reduced life of the product.

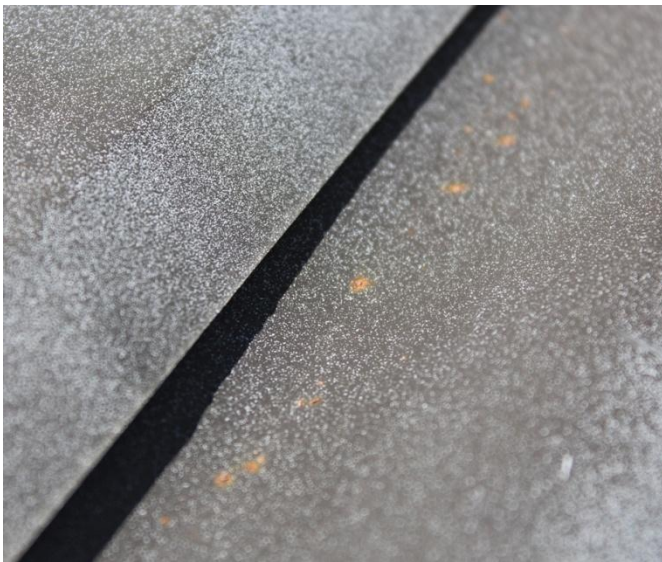


Mild swarf stains can be removed by the use of dishwashing liquid that should be applied sparingly with a soft cloth to the immediate area.

For more stubborn swarf that has been left for some time and adhered to the surface, the careful use of a nylon pot cleaner may be necessary. The immediate area should be cleaned down without undue pressure, as this could damage the paint surface, and the whole area should be washed down with copious amounts of water to ensure there is no remaining cleaner left on the roof.

When sweeping or rinsing into a gutter, clean out the gutter before leaving the job in order to prevent corrosion. On completion of the job, conduct a final inspection of the site to ensure all swarf particles are removed®.

Figure 1. Example of Swarf



Effects of swarf damage

The effect of swarf staining on your KiwiColour® product is generally aesthetic, and may not be detrimental to the performance of the product. On pre-painted surfaces, red oxides of iron are normally inert substances and do not attack the pre-painted finish; the stain is merely absorbed by the pre-painted finish.

Red oxides of iron are insoluble in water, and the stain will take considerable time to weather away naturally. This is not the case when hot swarf has embedded itself into the paint surface and is in contact with the metallic coating. In weathering away by oxidation, the metal coating will sacrifice itself to the bare steel swarf in the immediate vicinity causing the life of the coating to be severely affected.

No cure will restore the surface to its original condition, but damage can be reduced by prompt action.

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KIWI STEEL NZ LTD

