

IDENTIFICATION OF FUNGUS IN THE FIELD AND RECOMMENDATIONS FOR ITS REMOVAL

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OCCURRENCE

Fungus has been observed on painted materials (*including COLORBOND® pre-painted steel*) in many tropical and temperate areas of Australia and overseas. However, this does not mean that all painted materials or all COLORBOND® steel products in a fungus prone environment will be affected.

It is considered that fungal growth occurs when the “micro-environment” on and around a particular installation is conducive to it.

There is no evidence that COLORBOND® steel is more prone to fungal growth than any other painted material or that a particular coil coating is more likely to show fungal growth than other coatings. In an area where fungus is common, it is highly likely that fungal growth will be observed on COLORBOND® steel, as well as other surfaces such as roof tiles, glass or polycarbonate sky-lights and powder coated handrails for example.

In general, it is believed that such products act mainly as surfaces on which fungi can grow as a result of suitable conditions, eg the presence of fungal spores, moisture and nutrients from “dirt” of various types.

CHARACTERISTICS

Areas affected by fungus may be divided into 4 basic types:

i) Heavy Overall

In this case fungal growth is present as a dark deposit of varying intensity and patchiness over the affected installation.

A portion of a roof made from COLORBOND® steel that exhibits heavy overall fungal growth is shown in Figure 1. It should be noted that some areas, eg around zinc-plated fasteners, may be relatively free of fungus.

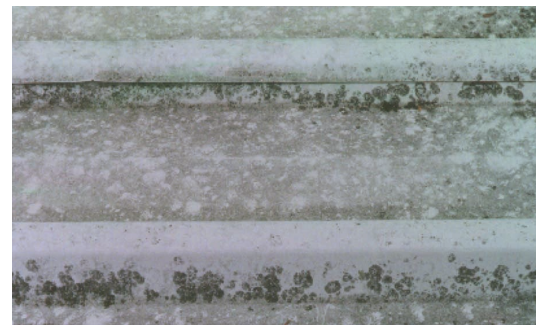
ii) Spotty Overall

Some installations may also show an almost complete coverage of fungus, but rather than being present as the dark “deposit” observed in (i), the fungus may be present as overall clumps or dots of fungal material. In some cases this type of fungal growth will be obvious at a distance, eg heavy infestation on a light colour, but in other cases, eg on a dark colour, the amount of fungus present may only be obvious close-up.

iii) Isolated Heavy Areas

It is not uncommon to have heavy areas of fungal infestation on a building. A typical portion of a roof where this type of effect is observed is around the ridge-capping, as shown in Figure 2.

Figure 1: Photograph of a portion of a roof made from COLORBOND® steel showing heavy fungal growth.



It is believed that this “ridge-cap” effect is due to the favourable micro-environment for fungal growth which exists in this area because of moisture and/or nutrients leaving the roof cavity at the junction of the ridge capping and the roofing sheets.

Furthermore, the remainder of the roof may show quite variable degrees of fungal infestation.

Figure 2: Photograph of a roof made from COLORBOND® steel showing fungal growth in the vicinity of the ridge-capping.



iv) Lichen

Lichen is a growth which incorporates both fungus and algae. Its appearance, as illustrated in Figure 3, is quite distinctive.

IDENTIFICATION

The first suggested means of identification is the information presented in the Characteristics section.

It is then recommended that a spot test with sodium hypochlorite solution should be carried out. The most convenient source of sodium hypochlorite is household bleach. The bleach should be as fresh as possible and the hypochlorite/available chlorine concentration should preferably be above 3%. Care should be taken in handling the solution, which is quite alkaline, and any tested areas should be



Figure 3: Photograph of lichen on a roof made from COLORBOND® steel.

thoroughly rinsed with fresh water afterwards.

The test procedure is basically to apply a drop of the bleach solution to a suspected area, mark the extent of the drop (*unobtrusively*) and wait a few minutes. If fungus is present, the dark material will be destroyed by the bleach and a clean drop area will result.

Please note that this is not a foolproof test for identifying fungus as the bleach can also affect organisms such as algae and bleachable organic matter. However, it is a valuable test because it will distinguish between fungus and normal inorganic dirt, which will not be bleached.

It is also worthwhile to examine the affected COLORBOND® steel using a magnifying eye-glass, eg 7x or 10x magnification.

Figure 4 shows a typical area of a lightly fungal-infested sample, with a “clump” of fungus in the centre and thin, spider-web-like hyphae around it.

CLEANING/RESTORATION

To restore the roof it is recommended that the roof be washed down with a 2% sodium

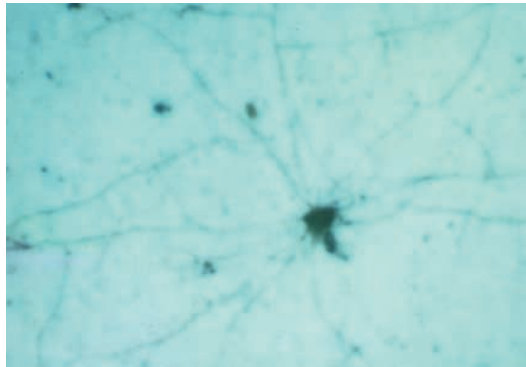


Figure 4: Photomicrograph of a typical area on a sample of COLORBOND® steel showing light fungal growth

hypochlorite solution. The sodium hypochlorite solution can be made up from commercially available bleaches. To assist in making up the solution, Table 1 below shows the dilution required for different strength bleaches to give a 2% solution. The bleach should be applied with a soft bristle broom, left for 3-5 minutes, and then washed off with copious amounts of water. A small amount of non-ionic detergent may be added to the bleach if necessary to improve wetting.

It is important to note that the use of higher than recommended concentrations of sodium hypochlorite solution and/or extended contact times or the use of commercially available fungicides may be detrimental to the long term performance of COLORBOND® steel products.

Care must be taken when using hypochlorite solution to avoid any solution being washed into water tanks.

As the fungal growth observed is not a result of any material fault, restoration remains the responsibility of the owner.

Table 1:

% Sodium hypochlorite or % available chlorine in bleach (by weight) (NB: 10g/L = 1%)	Dilution to give 1L of 2% sodium hypochlorite solution
10%	200mL bleach + 800mL water
5%	400mL bleach + 600 mL water
4%	500mL bleach + 500mL water
3%	670mL bleach + 330mL water
2%	No dilution required

The information and advice contained in this Bulletin is of a general nature only, and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that the materials, approach and techniques referred to in this Bulletin meet your specific requirements.

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