

## Sunscreens and powder coating or paint finishes.



From the Australia Research Council Centre of Excellence for Free Radical Chemistry and Biotechnology comes this article which details work done on pre-painted steel, but could just as easily apply to aluminium joinery and motor vehicles.

Next summer when you apply sunscreen, don't forget to wash it off your hands or else you run the risk of tarnishing the paintwork on your car, notes Dr Philip Barker of BlueScope Steel Research and Partner Investigator of the Centre.

In new research it has been found that when certain sunscreens containing titanium dioxide are applied to plastic surfaces they can accelerate the degradation process up to 100 times faster through a process involving free radicals.

"The images of visible hand-prints on pre-painted steel roofs are quite astonishing", says Professor Carl Schiesser, Director of the Free Radical Centre, "the area that was touched by the titanium dioxide containing sunscreen appeared severely affected, demonstrating increased free radical damage."

Free radical damage occurs naturally through the effects of the sun. Solar radiation causes bonds to break in materials so that plastics become brittle and paintwork flakes.

The titanium dioxide used in sunscreens is normally pacified, which means that it becomes a relatively stable compound that does not promote free radical damage. It is added to sunscreens in order to absorb the UV radiation produced by the sun. It is important to note that not all sunscreens contain titanium dioxide many are formulated using organic UV absorbers.

Without sun protection UV radiation burns our skin like a large laser, breaking down the cells and causing redness, and in severe cases blistering, and also precursors to cancer.

"It seems, however", says Dr Barker, "that within the group of 35 sunscreens that were tested there were a number which are using non pacified titanium dioxide, which does promote free radical damage. In this study we have proven it to negatively affect surface coatings of our products, including ColorBond®. Unfortunately, there is no way for the consumer to know if the titanium dioxide in their sunscreen has been pacified or not. These effects have only really been noticed since mid 2006, suggesting a change in some of the sunscreen compositions at around that time."

"If the consumer is concerned" says Professor Carl Schiesser, "there are many other options to ensure that people remain sun smart, and their paintwork unblemished, throughout the summer."

**Whilst not all sunscreens have the capacity to damage paint or powdercoating, the message is clear, treat all sunscreens as if they could damage coated surfaces and wash hands after applying sunscreen. In the event of accidental application of sunscreen to joinery, clean off as soon as possible with warm soapy water and rinse well.**

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