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## Paint and Environmental Considerations

There are two basic types of paint to choose from: water-based paints, often referred to as acrylic emulsions, and solvent-based paints. High-quality water-based paints offer not just an excellent all-round performance profile, they are also a good choice from an environmental perspective. Solvent-based paints, the more traditional type of paint, require users to exercise a degree of caution to avoid potential damage to the environment

Solvent-based paints are a source of potentially hazardous emissions called **Volatile Organic Compounds (VOCs)**, a family of substances that easily evaporate into the air to form invisible vapours.

When evaporating, the solvents contained in paint emit VOCs into the atmosphere. VOCs react with oxygen in the presence of sunlight to form ozone – "bad" ozone.

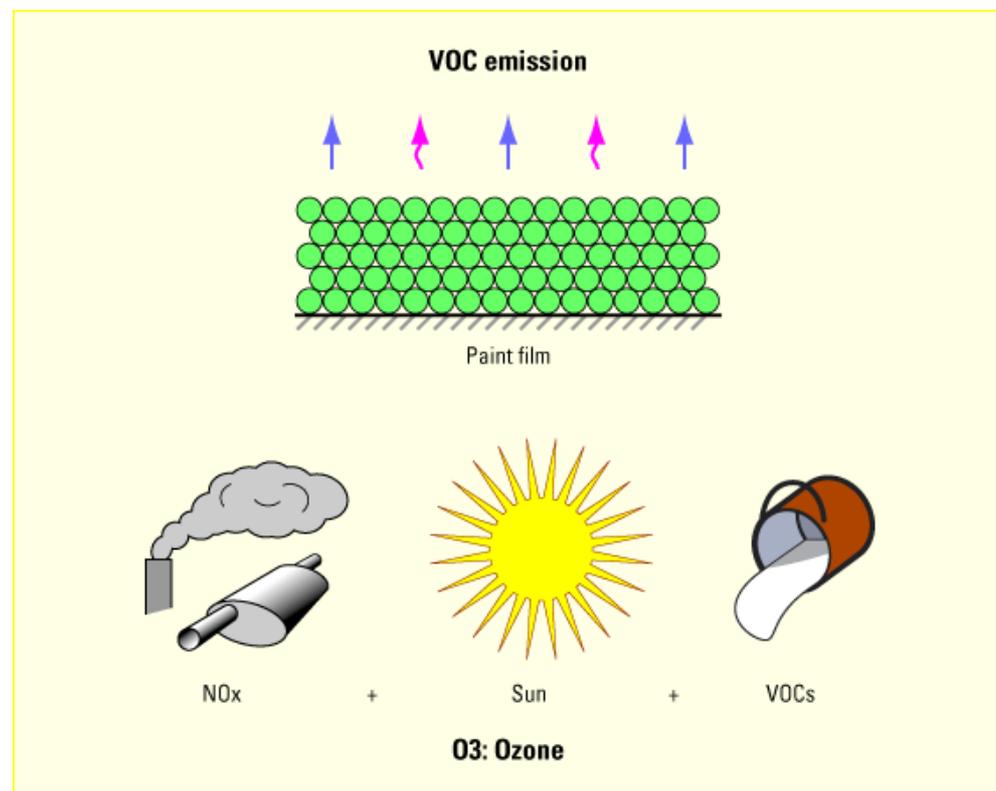
**It is important to distinguish between "good" ozone and "bad" ozone.**

"Good" ozone occurs naturally in the stratosphere about 10-35 kilometres above the ground, which protects the surface of the earth from harmful ultraviolet rays and acts to protect plants, animals and humans from its various harmful effects.

"Bad" ozone occurs at ground level, forms through the chemical reaction between VOCs, oxygen and sunlight, and is an irritant for the mucous membranes. It can also cause nose, eye, and throat irritations; and can lead to shortness of breath, coughing, and asthmatic symptoms.

This "bad" lower-atmosphere ozone can also damage vegetation – plants, trees, bushes – and such impacts negatively on those dependent on nature for their livelihood. This ozone also has a corrosive effect on certain man-made materials: for example, it accelerates the deterioration and fading of certain paints.

A further major consequence of VOC emissions is global warming – VOCs play a significant role with respect to the creation of the greenhouse effect. Further, some chemically very stable VOCs participate in the destruction of the stratospheric ozone layer (the "good ozone"): this is the famous hole in the ozone layer.



According to a study of the C.E.P.E (Conseil Europeens de L'Industrie des Peintures, des Encres, d'Imprimerie et des Couleurs d'Art) roughly 4 to 5 % of total VOC emissions are linked to the manufacture and application of paints and varnishes – with solvent-based paints playing a major role.

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