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COMBUSTION INFORMATION for coated posts and poles

The gaseous products formed during the combustion of organic materials (such as wood and bitumen) can be classified into two main categories; asphyxiant gases such as hydrogen cyanide and carbon monoxide and irritant gases such as oxides of sulphur and nitrogen and organic irritants such as acrolein and formaldehyde. Relatively small amounts of PAHs (Polycyclic aromatic hydrocarbons), particulate matter and more complex exotic molecules may be formed, particularly during incomplete combustion¹.

Bitumen is a by-product of decomposed organic material, the addition of a surfactant to the emulsion mix may result in small quantities of hydrogen chloride gas being given off.

Because the building blocks of wood and bitumen are the same, there will be little or no significant difference in the combustion products of a coated and uncoated fencepost.

FURTHER INFORMATION

Extreme caution is required when predicting the products of thermal decomposition as the materials can breakdown under a number of different conditions. Flaming combustion occurs in a 'normal oxygen' environment with the presence of a flame and is highly efficient and should result in the complete combustion of the material, converting it to carbon dioxide and water. However, in most cases this is not so due to the presence of other materials in the atmosphere and in the fuel material.

Scenarios where combustion is considered to be incomplete, due to low temperature, lack of ventilation and absence of flaming would be expected to form the greatest quantity of hazardous combustion products.

Initially, under the conditions of well ventilated combustion, the production of smoke and toxic compounds tends to be low, with more toxic products formed as the fire develops Working outside increases the variables when weather conditions, such as humidity, wind speed and direction play a part.

¹ Health Protection Agency-CHaPD-004 A Toxicological Review of the Product of Combustion - JC Wakefield Feb 2010

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