Health and Safety Executive / Local Authorities Enforcement Liaison Committee (HELA)

Local Authority Circular

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To: Directors of Environmental Health/ Chief Environmental Health Officers of London, Metropolitan, District and Unitary Authorities and Chief Executives of County Councils.

For the attention of: Environmental Services /Trading Standards /Fire Authorities /Other

This circular gives advice to local authority enforcement officers

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PHOTOCOPIERS

INTRODUCTION

1 This circular explains the operation of a typical photocopier and examines the hazards to health.

BACKGROUND

The direct process

2 An image is formed directly on specially treated paper. The process is akin to conventional photography, in that special light sensitive paper is required. This is developed within the machine, often using an ammonia-based process. The remainder of this circular deals with the transfer process which was developed in the 1940's in the USA and originally called 'xerography' (literally 'dry-writing').

strong negative charge. In the darkness the PC will store this charge; exposure to light dissipates the charge. Because the charge sensitivity of the film diminishes with use it has to be replaced at intervals. The electric field is created by a 'corona', a line wire carrying a very high voltage (7 to 10000 volts) in a three sided metal enclosure or shield. In other machines the PC is a layer of selenium metal (often with additives such as arsenic) flash coated on to a drum.

Exposing the PC

5 In order to expose the PC the original document is placed on a glass sheet and scanned by a beam of light which is reflected from the document and through a lens system onto the PC. The PC discharges where the light strikes. Light is not reflected from dark areas of the original the corresponding parts of the photo conductor remain charged. A latent image has now been formed on the PC.

Developing the image

6 In the dry system the developer is a combination of beads of plastic-coated granular substance; the toner is finely powdered carbon black and a polymer resin. When the beads and toner are rubbed together a static charge is generated causing the toner to cling to the beads. This mix is cascaded onto the PC drum and the charge toner in the mix is attracted to the charged areas of the PC drum forming a visible image. The beads fall back into the bottom of the developer reservoir for recycling and additional toner is added to the mix as required.

7 Wet toners contain carbon black in a hydrocarbon solvent and are applied to the PC by a roller and bath. Wet toners are almost invariably handled by a sealed system of

Ultra violet light

11 The high powered light