Technical Bulletin

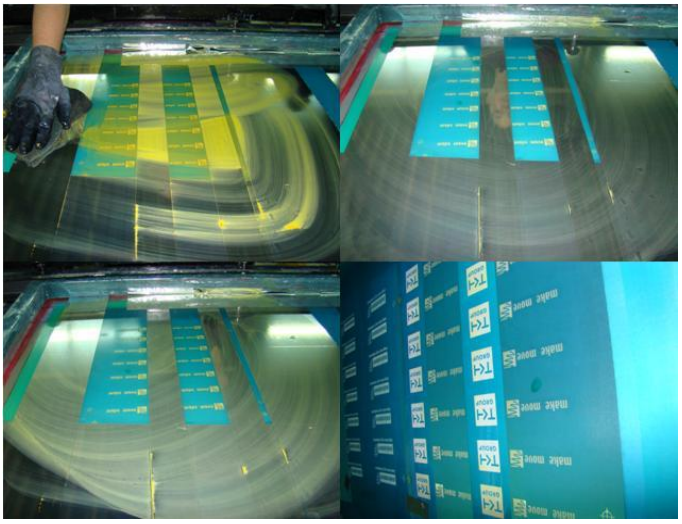
INNOVATIVE CLEANERS AND STRIPPERS FOR THE GRAPHIC INDUSTRY

An environmentally friendly solution does not always mean decreased cleaning power

Number: 2009/05

During the 1990s everybody still used cleaning agents that were hazardous to people and the environment, and the graphic industry was no different. The European VOC (volatile organic compounds) directive came into force in March 2000. This also limits the use of certain hydrocarbons, also called solvents, which are hard to replace in this sector of industry.

Despite the new regulations and directives, Vecom aims to offer its clients products that work well even without, for example, specific (often powerful) hydrocarbons. In addition, products must also be as harmless as possible to humans and the environment. Specifically for the graphic industry, these targets resulted in the product **Screen Degreaser 632.** A powerful degreaser for frequent use, supplied without hazard symbols on the label, but that still has a good cleaning performance as compared to heavily labelled products. The product has not been classified, but is comparable to a class K2 product with a flash point of 44 °C.

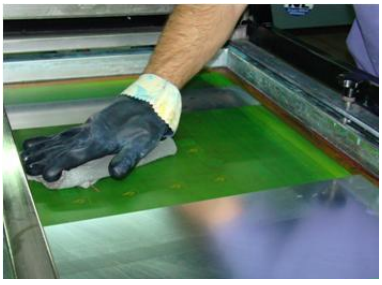


Use of Screen Degreaser 632

Screen Degreaser 632 performs very well in the removal of (nonaqueous) ink residue that settles in unwanted locations. It also accelerates the action of a defilmer/stripper, which penetrates into the emulsion layer more quickly after treatment with Screen Degreaser 632. The cleaning process can be improved even further, often with simple mechanical agitation. Vecom would be pleased to support customers in the use of Screen Degreaser 632 to optimise their processes. Our experience with various other graphic companies has been of great benefit to us.
In practice, products that are used several times a day must be reasonably priced. This has been taken into account, as Screen Degreaser 632 is very cost-effective.

Practical Test Maas van ’t Hoog

In order to demonstrate that the product meets the practical requirements of a demanding client, we set up a test at printing company Maas van ’t Hoog in Enschede. This leading company in textile printing has a large output and uses significant amounts of cleaning agents. Screen printing carrousels for the printing of 6 to 14 colours in one run requires fast and efficient cleaning.
The product is used for both the intermediate cleaning and the final cleaning. Important bene-fits for Maas van ’t Hoog, in addition to the cleaning action, are the conse-quences for environ-mental reporting and health & safety conditions. For example, the use of Screen Degreaser 632 resulted in a negligible level of solvent vapours. This resulted in the company improving by 2 classes in the municipal directives. The risk of OPS (Organic Psychosyndrome, also called Painters’ Disease) for employees has virtually disappeared. The Screen Degreaser 632 is applied using a cleaning cloth and dissolves the ink after only a few wipes back and forth.



During the interim clean, the ink is removed in only a few swipes with a cleaning cloth. During the final cleaning, a screen that has already been wiped clean will again have Screen Degreaser rubbed on it. After a dwell time of several seconds, the remaining residue is rinsed off with water. Screen Stripper can then be used to dissolve the emulsion layer.

Ghost images

Fortunately, Printing Company Maas van ’t Hoog has very little trouble with ghost images; this is mainly due to the coarser screen that is used for textile printing and also due to good lighting. For many other companies, the removal of ghost images is one of the most complicated steps of the cleaning process. Ghost images occur as a result of diazo staining and/or minuscule ink and emulsion residues. Diazo is an element that is present in the photo emulsion and creates the ochre yellow colour. This colour is extremely hard to remove. The Diazo disappears during the light exposure of the emulsion, but remains in areas not exposed to light. The extent to which this occurs is largely dependent on the extent of light exposure and the type of emulsion.
Ghost images occur as a result of ink residue binding to incompletely cured parts of the emulsion. This occurs mainly on the border between light exposure and unexposed areas, i.e. the edges of the image. The uncured emulsion acts like a sponge in the corners of the screens (wire crossings), absorbing the ink molecules when they are forced through the screen at high pressure. The effect is worsened by wear and tear and aggressive cleaning agents, which make the wires on

the screen rougher. The compressed emulsion and ink residues form a very persistent combination, particularly because there are virtually no products that can dissolve both elements simultaneously. Traditional ghost image removers were always based on chlorine (this hides the ghost image, but does not remove it) or sodium hydroxide. However, sodium hydroxide has a damaging effect on the polyester wires. These will get corroded and become rougher, which only worsens the build-up of ghost images after treatment.
The use of modern degreasers/ink removers, such as Screen Degreaser 632, decreases the build-up of ghost images. It does not damage polyester and also removes minuscule ink residue. Removal of the image carrying emulsion with Screen Stripper KT-10 (also a Vecom product) yields the best results. Screen Stripper KT-10 does not contain chlorine or sodium hydroxide and gives a very good cleaning result, without corroding the screen. A single treatment is as effective as the currently available 2-component strippers, but without being viscous thus making it easy to apply. The powerful formula of Stripper KT-10 means that it can be diluted 1 to 5 or 1 to 10.

Other applications

In addition to the original use of Screen Degreaser 632, the degreasing properties of the product are so effective that it can also be applied for other uses. The same benefits from the graphic industry, such as diminished vaporization as compared to traditional hydrocarbons, apply for other industrial uses. Please contact the author of this article about other applications.

Ghost images occur particularly at the edges of the image, where the emulsion is not completely hardened. This effect is minimal at Maas van ‘t Hoog, due to the larger weave of the print screen.

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