SunChemical DIAMOND

PRODUCT REFERENCES

PRODUCT	PRODUCT CODE	☼	A	M	⌂
Process Black	SunChemical® Diamond DIA46	8	-	-	+
Process Cyan	SunChemical® Diamond DIA25	8	+	+	+
Process Magenta	SunChemical® Diamond DIA27	5	+	+	-
Process Yellow	SunChemical® Diamond DIA26	5	+	+	+

☼ Lightfastness ISO 12040
A Alcohol ISO2836
M Solvent Mixture ISO 2836
⌂ Alkali ISO 2836

TECHNOLOGY USED IN SUNCHEMICAL® DIAMOND PRODUCTS

Sun Chemical® DIAMOND products are based on the latest technology that is mineral oil-free and uses vegetable oil materials. These inks can be used in many market sectors where environmental issues gain importance:

RENEWABLE RESOURCES AND NON-FOSSIL CARBON CONTENT

Sun Chemical® DIAMOND contains the maximum level of materials from renewable resources such as vegetable oils, vegetable oil derivatives and alkyd and rosin based resins. As such the level of non-fossil carbon present is about 70%.

RECYCLING PRINTED WASTE

Waste prints on paper and carton board which were produced using these inks can be recycled successfully when present as a part of post-consumer waste feedstock for modern recycling plants.

BIODEGRADABILITY

Use of these inks on substrates suitable for disposal in waste intended for composting and eventual biodegradation will not adversely affect these processes.

PRINTING WITH REDUCED LEVELS OF ALCOHOL

These inks when used in association with a suitable fountain concentrate designed for alcohol reduced operation together with appropriate procedures in the print shop can be used as part of a program to reduce the use of Isopropyl Alcohol. Under good conditions Sun Chemical® DIAMOND can be printed alcohol-free.

OUR POLICY

As the world's foremost producer of inks, pigments and colour technology, Sun Chemical will lead our industry in developing and producing products which minimize our impact – and our customers' impact on the environment, and strive to maximize the use of renewable resources. We consider it our responsibility to be involved in the communities in which we live and work and to offer direction in meeting today's needs without compromising the ability of future generations to meet theirs.

OUR APPROACH

We choose the materials and processes we use so that Sun Chemical reduces our impact on the environment. Sun Chemical strives to manufacture products that meet local regulatory requirements. We will work with governments and industry trade groups to define, measure and promote sustainability. We also will build relationships with business partners who share this vision.

By so doing, we will provide economically viable products and data for customers to enhance the sustainability of their products. Sun Chemical has long been known for innovation, technical expertise, and for the quality and performance of our products. Providing sustainable solutions and careful environmental stewardship are at the heart of our daily work and our strategic direction, worldwide.

SunChemical®

JUST IMAGINE

SUN CHEMICAL – GLOBAL SUCCESS IN A WORLD OF COLOUR

Sun Chemical is the world's largest producer of printing inks and pigments. It also is a leading provider of materials and services to packaging, publication, coatings, plastics, cosmetics and other industrial markets. Sun Chemical has more than 300 locations worldwide to provide customers local service with a global perspective.

Sun Chemical has an historic pedigree, tracing its history back to 1818. Since then, Sun Chemical has expanded its operations, bringing many well-known companies and brands under its umbrella including Coates Lorilleux, HARTMANN, US Ink and Kohl & Madden.

Sun Chemical **GREEN TECHNOLOGY**

" Respect for the environment, and a desire to best utilise materials from renewable resources, form part of the longterm strategy and daily life within Sun Chemical. Use of this new logo by Sun Chemical is our way of showing our customers that the product or service complies with a strict set of guidelines. Observing these guidelines allows Sun Chemical to demonstrate our commitment to the environment and the world around us."

Felipe Mellado, Vice President, Sun Chemical Europe

Sun Chemical Ltd.
Cray Avenue
St Mary Cray, Orpington
Kent BR5 3PP
United Kingdom
Tel +44 (0) 1689 894 000
Fax +44 (0) 1689 894 020

Hartmann Druckfarben GmbH
Borsigallee 13
60388 Frankfurt am Main

Germany
Tel + 49 (0) 69 4000 0
Fax + 49 (0) 69 4000 286

Sun Chemical Europe
Wexham Springs
Framewood Road
Slough, SL3 6PJ
United Kingdom
Tel +44 (0) 203 139 0000
Fax +44 (0) 203 139 0001

WWW.SUNEUROPE.COM

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SunChemical®

SHEETFED OFFSET
PROCESS INKS

SUN CHEMICAL GREEN TECHNOLOGY

SunChemical DIAMOND

NEW SHEETFED OFFSET INKS FOR HIGH PRODUCTIVITY PRINTING

Sun Chemical® DIAMOND is a brand new range of 4-colour process sheetfed offset inks designed for high productivity in commercial and packaging printing. Sun Chemical® DIAMOND are state-of-the-art offset printing inks with a new and innovative formulation to meet increasing demands for productivity with excellent printability, fast setting and low misting.

PRODUCTIVITY IN PRINTING

Meeting the challenge for further increases in productivity means trouble-free printing at the highest printing speeds on the widest range of paper and carton board. In many printing plants this also means trouble-free printing on a range of different presses with different roller systems and different founts.

Sun Chemical® DIAMOND is the result of extensive research and development into new materials needed to meet the demands for one highly versatile and reliable printing ink. On the printing press these new inks are fast up to colour which reduces printing waste, especially at start up and restarts, and will print perfectly at the highest press speeds. At high press speeds some ink products can cause ink mist. One important feature of Sun Chemical® DIAMOND is the low misting performance even at the highest press speeds.

PRODUCTIVITY IN FINISHING

In order to finish printed work soon after printing the print surface must be set or dry and resistant to marking. The ink setting process must be very rapid and lead to a non-sticky surface quickly if marking and blocking are to be avoided. Sun Chemical® DIAMOND is faster setting than other comparable products and this allows improvements in productivity in the finishing department. Stacks of printed work can be moved quickly through to cutting, folding or the bindery and with less risk of marking.

OVERALL PRODUCTIVITY IMPROVED

Using Sun Chemical® DIAMOND can be one important element in the plan to improve productivity. Sun Chemical® DIAMOND is easy to use on the press, has good lithographic stability even at the highest press speeds and fewer stops will be needed when printing. With high and stable print quality, even on cost effective substrates containing recycled materials it's low misting and fast setting properties make these new inks an essential first step to greater productivity. Sun Chemical® DIAMOND inks are based on the latest mineral oil free technology.

SunChemical®

ABOUT INK MISTING

The risk of ink misting increases with the press speed. There are many factors that either increase or decrease the risk and the notes below are here to provide some answers.

Ink mist is caused by droplet formation during the ink film splitting between rollers. As the ink transfers from roller to roller the ink film is split. As the ink film leaves the 'nip' between the rollers it is pulled apart and filaments or strands can form. These can break in several places and the resulting droplets can become airborne and build up on press guards or on the floor. This is called 'misting'. The ink formulation must be adapted to the engineering requirements of the printing press but using the ink rheology (tack and viscosity) adapted for best ink transfer and to minimise misting.

The following other factors have an impact:

TEMPERATURE

To minimise misting the roller train needs a well controlled (low) temperature. As the temperature rises the risk of ink misting increases. This is a function of the ink viscosity in the 'nip'. At higher temperatures the ink is more fluid and the risk of misting increases. Controlling roller temperatures has been shown to have the biggest impact on reducing ink mist.

PRINTING SPEED AND ROLLER SIZE

Mist is created as the ink film splits. The faster the press and the smaller the diameter of the inking rollers the more times the ink film is split and the greater the risk of misting. The relationship is not linear since there can be a key point in terms of roller surface speed when droplet formation becomes more evident. In the development of printing inks for high press speeds special testing methods allow careful selection of a formulation adapted to higher frequency splitting.

INK MIST TESTING IN THE LABORATORY

Image courtesy of US Ink

INK FILM THICKNESS AND WATER BALANCE

Using proper density control on the press is critical to maintaining the right film weight on the rollers. An excessively high ink film weight at high press speed can inevitably lead to an increased risk of ink mist. Ink water balance is also included here as when both ink and water levels are increased unnecessarily the film weight on the rollers is increased. In general terms printing with the minimum of ink and water settings will reduce the risk of misting at high speeds.

ROLLER SETTINGS

The use of the correct rollers and roller settings are needed to reduce the risk of ink misting. Provided that the correct hardness is used and the rollers are not excessively glazed then it should be sufficient simply to use the correct pressure setting. Excessive pressure between rollers not only causes deformation which can lead to misting but also higher temperatures.

SunChemical® DIAMOND

SUNCHEMICAL® DIAMOND CHARACTERISTICS

- **Duct fresh**
- **Vegetable oil based and mineral oil free**
- **Resistance to print scratching in fast work and turn**
- **Resistance to machine marking in high-speed production**
- **Complies with Toys regulations and CONEG (heavy metal regulation)**
- **Excellent setting and drying**
- **In-line and off-line varnishable (water-based coatings)**
- **Off-line varnishable (suitable UV coatings)**
- **Runs with and without alcohol in the fount**
- **Suitable for all presses**
- **Perfect for books, magazines, commercial and publications, advertising and packaging**
- **Standard lightfastness, solvent and chemical resistance**
- **Complies with ISO 2846:1**
- **Meets the requirements of ISO 12647:2 when used with appropriate procedures**
- **Proven on perfecting presses, 8, 10 and 12 colour**
- **Can be used on perfecting presses equipped with coating units**
- **Suitable for all types of CTP lithographic plate**

RESEARCH AND DEVELOPMENT

Sun Chemical is not only involved in the research and development of printing inks but also is a leader in developing and producing pigments, polymers, resins and additives for printing inks. These parallel and convergent processes allow synergies and support application focussed formulations. Sun Chemical® DIAMOND is a result of both R&D and the synergy possible within Sun Chemical. Customer technical service is part of the complete offering from Sun Chemical to improve your productivity and profitability. Our Extensive CTS also ensures timely feedback from our customers on new requirements in the world of printing. We listened to our customers demands for high productivity in one product and now we can offer Sun Chemical® DIAMOND. Sun Chemical is leading the way.

SUNFOUNT™ PRODUCTS FOR USE WITH SUNCHEMICAL® DIAMOND SHEETFED OFFSET PROCESS INKS

SunFount™ 410	Can be used with inks on all presses where the isopropanol (IPA) content in the fount is between 5-7%
SunFount™ 460	This product has Active Copy Layer Protection (ACP) for best performance with inks on CTP and CTcP printing plates and when running alcohol-free
SunFount™ 480	For low or alcohol-free printing (0-5% IPA) on all sheetfed offset presses an excellent fount partner to Sun Chemical® DIAMOND inks

SUNCOAT™ PRODUCTS FOR USE IN IN-LINE COATING OVER SUNCHEMICAL® DIAMOND PRINTING INKS FOR ADDED VALUE

SunCoat™ 9283	for the highest gloss over Sun Chemical® DIAMOND
SunCoat™ 9223	for good gloss with high productivity
SunCoat™ 9243	for doubled-sided printing on paper
SunCoat™ 9260	for matt effect
SunCoat™ 9233	for protection and sealing at highest productivity

Contact Sun Chemical or Sun Aqua Systems for full details and additional information (www.sunchemical.com/europe).

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