



...spray powder product guide...



Varn

Solutions to your press room problems...

For more than fifty years, we have earned the pressman's trust by providing quality products, designed for safety in use and protection to the environment. A continuous research and development programme linked with Day's technical support will ensure our position remains as No.1 in press room products.

Can we rest now?

Not if we want to keep your trust.

Research and Development...

Day recognise the ever increasing demands of today's sheetfed market. More than ever, printers must find ways to improve upon print quality, while at the same time, reduce costs. In doing so the importance of choosing the correct grade of spray powder to best suit the application is often over looked. Day International's product development team have recently completed a 12 month project to review and develop its acclaimed range of spray powders, to help improve on print quality and product efficiency. The culmination of this in-depth review has allowed Day's team of pressroom specialists to understand the role of spray powder in the offset printing process greater than ever before and will allow today's printer to clearly define which powder to use on press.

The Varn European Technology Centre, based in Manchester has overseen the introduction of new ground breaking technology for the analysis of powder products and powder raw materials. This new technology consists of Laser Diffraction for particle size analysis, powder flowability index determination and digital imaging for improved microscopy. Before this new technology was introduced, microscopy, sieve testing and coulter analysis were the only investigative testing methods available for spray powder.

In conjunction with this new technology - extensive laboratory and press trials completed in partnership with leading press manufacturers, has given Day an improved understanding of the composition and properties of powder, and challenges the existing application theory of spray powders in the pressroom. We have been able to determine which particle sizes best suit which substrates along with the various additional applications that contribute to the printing process, such as coating and varnishing.

Health & Safety...

The new Varn Spray Powder Range is manufactured from natural food grade starches and has been extensively trialed and proven throughout Europe providing excellent results on all substrates.

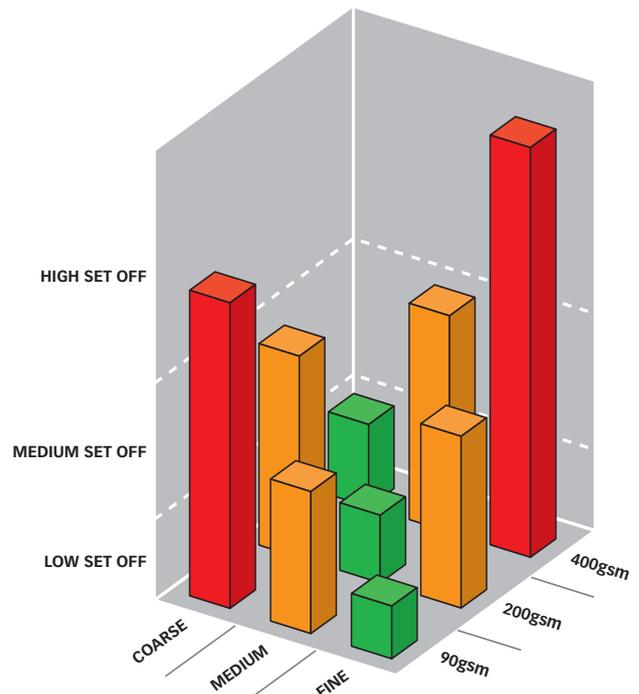
Varn Spray Powders offer excellent health and safety benefits - being starch based, they are easily ingested in the body, and as such are approved by BG. Varn Spray Powders are certified GMO free as defined in European Directive 90/220/EEC, and are manufactured in a GMO free production plant ensuring no cross contamination can occur. Varn Spray Powders are suitable for direct food contact, have Kosher certification and like the CC range are also gluten free.



Varn Spray Powder Range...

The end result of this research is Day International's new Fine, Medium and Coarse Spray Powders. This range is available in both the "R" series which are regular or uncoated powders, and the "C" series of powders which are coated. The C series of powders are micro-encapsulated with a new slip agent which enhances the powder, increasing its hydrophobic properties. They repel water and are attracted to the ink's surface, giving better 'set-off' protection and increased mileage. The coated powders are quite different in their working properties from the conventional or regular powders, but both types perform well in all spray units, and because they resist humidity, they will not clog spray nozzles.

- **Varn Fine Powder**
formulated for use with light to medium stock (<200 gsm)
- **Varn Medium Powder**
formulated for use with medium to heavy stock (200-400 gsm)
- **Varn Coarse Powder**
formulated for use with heavy stock (>400 gsm)

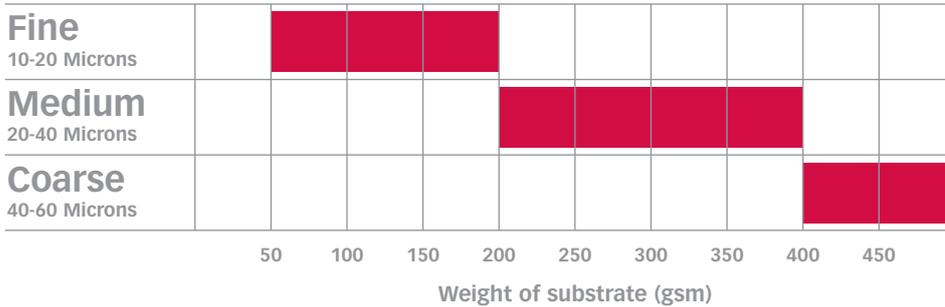


Ink set-off on various substrates with Varn Fine, Medium and Coarse Spray Powder.

Varn Regular Spray Powders...

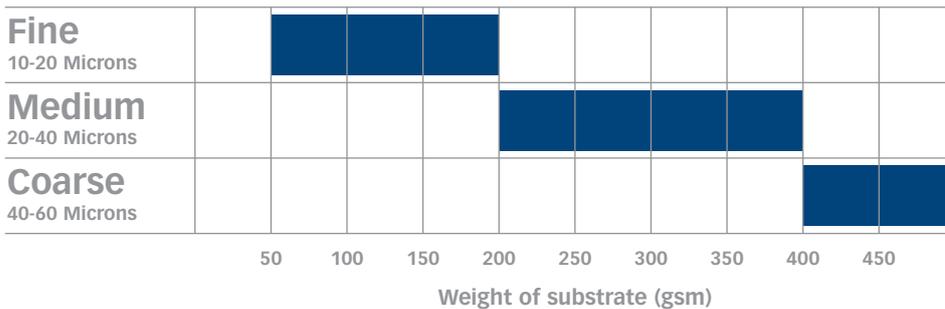
Varn Regular Spray Powders are often used in work and turn printing, or multiple passes on presses with less than 4 units. There are some exceptions, but trapping, especially on small presses, is a little easier with regular grade spray powder.

For optimum results, Day recommend the use of Varn Regular Spray Powder for overprinting, coating and laminating.



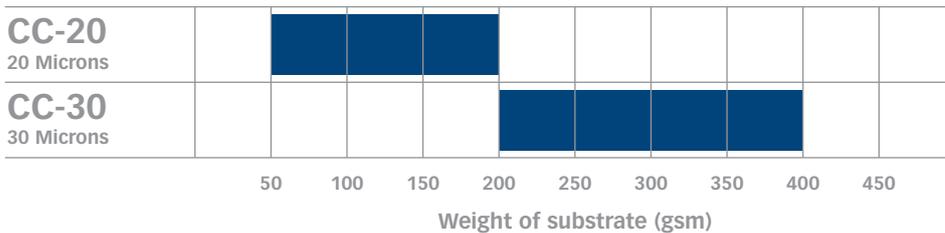
Varn Coated Spray Powders...

Varn Coated Spray Powders represent the vast majority of applications. Coated powders are ideal for large corrugated printers, folding carton manufacturers, multi unit presses (4+) and most large sheetfed printers where ink coverage is substantial. The grade of a powder should be determined by the weight of substrate, its absorbency and amount of ink applied and also the type of spray equipment being used. As a rule the grade of powder (and therefore the micron size) increases as the weight of substrate or the height of pile increases.

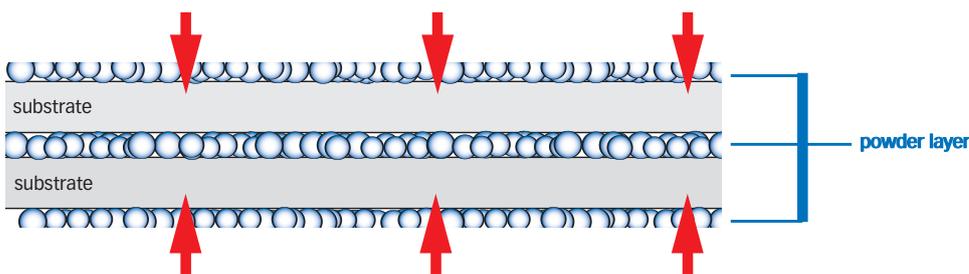


Varn CC Spray Powders...

Included within the coated range are Varn CC20 and CC30, these are standard coated powders which have been through additional manufacturing processes to eliminate fines resulting in minimum powder consumption and a cleaner working environment.



Uniform particle size...



A micron is a measurement equal to one millionth of a meter (1/10,000 of an inch). While Varn Spray Powders are listed in micron ranges, other powders also contain quantities of irregular particle sizes. However with Varn's quality control methods particle sizes are kept consistent by the proper selection of raw materials and by a unique screening operation during manufacture. Day manufacture a complete range of micron sizes to meet all printing requirements.



Day International's team of dedicated chemists meticulously evaluate the latest raw materials and manufacturing techniques in an ongoing research and development programme. This ensures that only the highest quality products are available to our customers.

Quality is second nature to Day and attention to detail is of paramount importance. All raw materials are rigorously quality inspected to exacting standards before the manufacturing process begins. The same high standards are adhered to throughout the manufacturing process and only when all criteria are met is the product released. All Day quality control procedures conform to **ISO 9001**.

As a manufacturer of speciality chemical products, we recognise that many of Day's processes and procedures have the potential to provide an environmental impact. Protection and enhancement of the environment has always been of paramount importance to Day. With the introduction of **ISO 14001**, Day have now put in place the structure to continually assess and improve our commitment to environmental issues.

Day use only the latest manufacturing techniques to produce the highest quality product available. This ensures product stability, consistency and the highest possible performance on press.

Day's dedicated Technical Sales Team fully understand Chemistry applications and the various control systems used on press. They are committed to working with our customers to ensure the correct choice and application of the Varn range of products to combine performance and economy.

Varn Spray Powders...

Preventing problems...

The primary function of spray powders is to form a separation between the sheets of stock as they leave the press. This separation provides a cushion of air to assist ink drying. It also breaks the suction effects of wet ink and static and prevents the ink from 'setting off' onto the sheet above. The powder's ability to perform this function is a result of a combination of factors including printing process employed, type of spray equipment, particle size, density of ink and further operations such as overprinting, varnishing and laminating.

Quick tips for preventing problems

- 1 As a rule it is advised that it is better to use less of a larger particle grade powder than to overcompensate with excessive spraying of a finer grade. Often excessive build up of spray powder in the delivery and surrounding press room can be due to this reason.
- 2 A rough sandpaper effect can often occur if too much powder is being applied or too large a micron size is being used.
- 3 For multiple pass work, overprinting, varnishing or laminating, regular grade powders may prove to be the most suitable.
- 4 Finished printed piles should be periodically checked during the run for any signs of set-off. If set-off is discovered, adjustments should be made to the spray unit settings, height of the pile, grade or micron size of the powder.
- 5 Spray powders should be stored in dry areas at room temperature. Varn regular grade powders are not impervious to moisture and should therefore always be stored in their sealed containers to prevent exposure to damp conditions. Failure to follow this procedure may lead to powder clogging and blockages of spray nozzles.

Troubleshooting

There are a variety of pressroom conditions which cause or affect ink set-off.

INK/WATER BALANCE Poorly maintained or incorrect choice of fount solution can influence ink drying.

ROOM TEMPERATURE The higher the room temperature, the faster ink dries. Temperature above 20°C. (70°F) speeds ink drying.

ROOM HUMIDITY Relative humidity above 60% retards drying. A difference of 10% can alter drying time appreciably.

STOCK HUMIDITY This greatly affects ink set-off. A job that sets-off in the centre and not on the outside edges is often caused by humidity variations within the stock. Stock that does not lie flat is more susceptible to ink set-off.

STATIC ELECTRICITY Static accumulation can be a prime cause of ink set-off. The use of the proper Varn powder can radically reduce the effects of static.

STOCK WEIGHT Folding carton and heavier stock has a greater tendency towards ink set-off.

INK DRYING Choosing the correct dryer and ink formulation are prime factors in reducing ink set-off.

Optimise Your On-Press Performance

Over the years, Day's printing technologists and pressroom chemists have learned the dynamics between pressroom products and printing blankets play a vital role in on-press performance and profitability. And they've learned how to analyse these dynamics to help printers resolve problems and optimise their printing results.

Day's laboratory experts, technical support team and sales consultants work together with printers to recommend the right combination of pressroom products and printing blankets to achieve optimum performance. A consultative service offered only by Day International.



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