

Scratch & Sniff Recommendations

General Guidelines

H.W. Sands Corp. Scratch and Sniff encapsulate products can be mixed into a variety of varnishes either for overprint varnishes (OPV) or coatings depending on the customer's preferred print system or process.

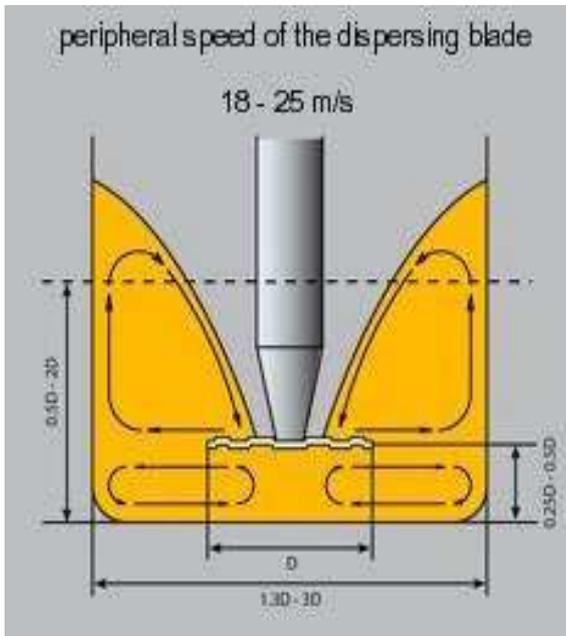
Product Specifications

Encapsulate Material: The fragrance encapsulates have a median size of 6 microns, can withstand temperatures as high as 200°C for short periods and will not be adversely affected by UV light, IR dryers or Heat Set Web Ovens. The encapsulate material, typically pre-measured in powder form, can be stored for 2 to 3 years providing the storage conditions remain stable and the *fragrance oil* is not degraded in any way.

Ink Systems Available: The H.W. Sands Corp. Scratch and Sniff Inks ship as a two part system for almost every printing ink system. The exception is the oil based offset formulation.

- **Oil Based Offset Printing Ink** (for *Heat Set* or *Sheet Fed*) is shipped as a press ready ink that must be mixed thoroughly to achieve a homogenous mixture which ensures even capsule delivery. The shelf life of the unused material can be stored for 1 – 2 years providing the storage conditions remain stable and the fragrance oil is not degraded in any way.
- **UV Offset Printing Ink** systems are shipped as two parts: 1 Part Dry Fragrance Capsules and 1 Part Ink Vehicle. These two parts must be mixed together to form a homogenous mixture the day of or just prior to your scheduled press time. The remainder of this mixture should be discarded as waste in accordance to the corresponding SDS. Any unmixed material should be stored separately in accordance to storage recommendations.
- **Aqueous or UV Flexo Printing Ink** systems are shipped as two parts: 1 Part Dry Fragrance Capsules and 1 Part Ink Vehicle. These two parts must be mixed together to form a homogenous mixture the day of or just prior to your scheduled press time. The remainder of this mixture should be discarded as waste in accordance to the corresponding SDS. Any unmixed material should be stored separately in accordance to storage recommendations.
- **UV Screen Printing Ink** systems are shipped as two parts: 1 Part Dry Fragrance Capsules and 1 Part Ink Vehicle. These two parts must be mixed together to form a homogenous mixture the day of or just prior to your scheduled press time. The remainder of this mixture should be discarded as waste in accordance to the corresponding SDS. Any unmixed material should be stored separately in accordance to storage recommendations.

Mixing Recommendations



Mixing the encapsulate material into the varnish will require the use of a high-speed mixer and a highly accurate scale. Be sure that your mixing container has a high wall to keep the capsules from overflowing while being mixed at high speeds. If the mixed material may sit for lengths of time before being printed, we recommend containers that have tightly sealing lids to keep the mixture from air exposure. While mixing, the varnish should form a vortex in the mixing container (see image below). Weigh out the fragrance capsules and spacers in a separate container and slowly feed into the vortex.

The duration of mixing is contingent to type of blade being used, mixing speed, capsule texture and type of varnish. The end result should ensure that the encapsulate material is dispersed thoroughly to produce a smooth homogenous mixture with no agglomerations.

Mixing Ratios: There is no standard determination for the amount of encapsulates to mix into any of the varnishes offered. However, a general guideline to follow would be 75% - 85% Varnish to 15% - 25% Fragrance Encapsulates. Once mixed, the ink should be used within 14 days for best results.

Scales: All material is measured based on weight. A scale with minimum measurement increments of at least 0.01 lb / 0.005 kg is recommended

Mixing Equipment: For proper dispersion of encapsulates, a high speed mixer ranging from 900 rpm 3000 rpm is required. Depending on the viscosity of the varnish, we recommend using either a dispersion blade for lower viscosity varnishes or a smooth toothless blade for high viscosity varnishes. To achieve a good homogeneous distribution with more viscous varnishes a 3 roller mill may be used. Settings should be kept as open as possible to ensure that there is shear, but not enough force to break encapsulates.

Printing Recommendations

Sheet Fed or Heat Set Web Varnishes (Including UV): Low odor gloss varnishes are recommended. A 20% loading of encapsulates will somewhat matt the varnish. Use the varnish as soon as possible for best results.

Aqueous Offset & Flexo Coatings: Aqueous formulations containing alcohols or solvents are known to attack the fragrance encapsulates. We strongly recommend testing the material in advance, as well as mixing and printing the coating as soon as possible. Due to the lower viscosity of the varnishes, capsules may tend to settle or float to the surface depending on the specific gravity of the specific fragrance oil. Continual agitation of the ink before and during printing is highly recommended.

Silk Screen: There is more flexibility with mixing silk screen varnishes since the application process is relatively gentle on the capsules. Higher concentrated mixing ratios of encapsulates to varnish may be achieved by this means. A 200 - 225 micron mesh size is generally recommended for printing. This is the most recommended method of printing and is available in Aqueous, Solvent and UV Cure.

Detailed Printing Guidelines for each type of ink system specified above are available upon request.

The performance (transfer, adhesion and permanence) of any ink is directly related to the cleanliness of the surface being printed. All applications using this product should be thoroughly tested prior to approval for production.

The information herein is believed to be reliable and is to assist customers in determining whether our products are suitable for their applications. However, no warranty, express or implied, is made as to its accuracy or completeness and none is made as to fitness of this material for any purpose. Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute any other warranty, express or implied, including any warranty of merchantability or fitness, nor of protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental, or consequential damages. We shall not be liable for damages to person or property resulting from its use. Consult the Material Safety Data Sheet for additional information