MultiSal® Fragrance (MS FR)

A fragrance encapsulation technology that extends fragrance performance.

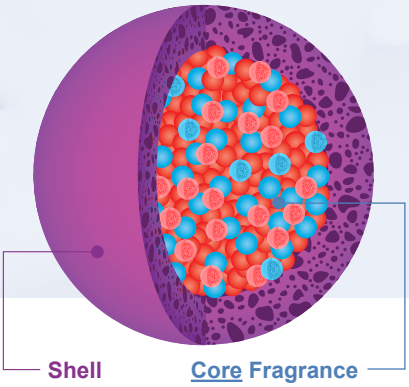

Figure 1: The structure of MS FR with an outer microsphere shell comprising sub-micron spheres infused with fragrance.

Typical fragrances are liquid, volatile, and require special conditions and equipment to handle. Some fragrances are sensitive to the product base and tend to react and discolor.

MS FR is designed to protect fragrance from premature evaporation, sustain the release, and protect it from the base ingredients. It is designed to transform the liquid into powder to ease handling.

UNIQUE FEATURES

1. **MOISTURE-TRIGGERED RELEASE**
   MultiSal® technology is engineered to release a burst of fragrance upon water activation.
2. **LONG-LASTING FRAGRANCE**
   Fragrance is released slowly and continuously over time to extend fragrance intensity.
3. **INCREASED SAFETY & EASE OF HANDLING**
   Suitable for incorporating into hot processes.

TIME RELEASE TECHNOLOGY

HOW THE TECHNOLOGY HELPS YOU

MS FR is based on a double-layered encapsulation (Figure 1). The fragrance is encapsulated within hydrophobic, sub-micron spheres that are encased within a larger hydrophilic microsphere.

The double encapsulation provides extra protection for the fragrance. Once the outer shell is exposed to moisture and friction, it breaks down and releases the sub-micron spheres containing the fragrance, which then release fragrance via diffusion over a prolonged period of time.

MS FR raw

1 **Anhydrous stick**

2 **Body powder**

3 **Hygiene paper**

Tel 1-(844) SALVONA | sales@salvona.com | www.salvona.com
2521 Kuser Road, Hamilton NJ 08691, USA
v021417

MultiSal® Fragrance (MS FR)

A fragrance encapsulation technology that extends fragrance performance.

LONG-LASTING FRAGRANCE RELEASE

Fragrance intensity was evaluated from two deodorant sticks: one containing 1.5% fragrance from MultiSal®, and another with free fragrance (Figure 2). MultiSal® controls the release of the fragrance over the course of 12 hours and maintains a higher intensity over the free.

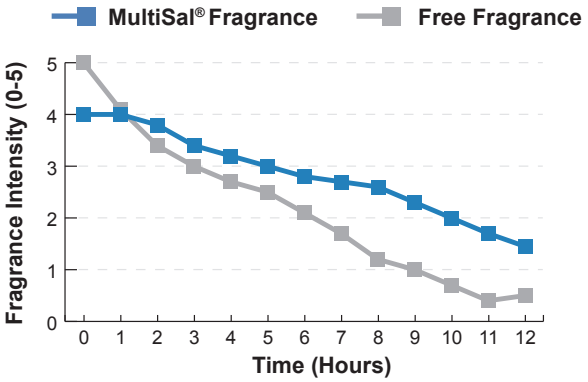

Figure 2: Evaluation of fragrance intensity over time from a deodorant stick containing 1.5% fragrance from MS FR compared to free fragrance.

LONG-LASTING FRAGRANCE RELEASE

Fragrance intensity was evaluated on a scale of 0-5 before and after water activation of a dry shampoo containing free fragrance and MS FR at 0.5% fragrance loading (Figure 3). After exposure to moisture, fragrance intensity from the MultiSal® application nearly tripled.

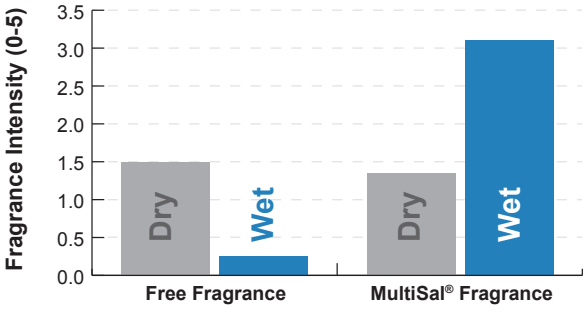

Figure 3: The effect of moisture on the fragrance intensity of MultiSal® vs. free before and after water activation from a dry shampoo application. Both were loaded with 0.5% fragrance.

HEAT STABILITY

The structure of MultiSal® is resilient up to 160°C. This qualifies MS FR for use in various hot pour procedures without significant fragrance loss. Thermogravimetric Analysis (TGA) was used to determine at what temperature the MultiSal® system will break down (Figure 4).

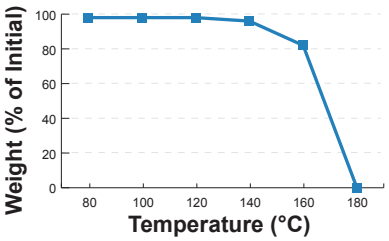

Figure 4: Effect of temperature on MS FR. MultiSal® breaks down to release the encapsulated fragrance at a temperature of 160°C.

FORMULATION

Ingredients	(W/W %)
MultiSal® Fragrance	5
Stick Base	95

TECHNICAL DATA

Appearance @ 20°C	Free flowing powder
Applications	Recommended for anhydrous and dry products such as deodorants, dry shampoos, body powders, aromatherapy tablets, and anhydrous lotions
Color	Off-white
Odor	Typical to fragrance used
pH (1 % solution)	4.5 ± 1.5
Shelf Life (months)	24
Usage Level (wt%)	1-6.67
Storage (°C)	Closed container at 12-32° with <45% RH

Tel 1-(844) SALVONA | sales@salvona.com | www.salvona.com
2521 Kuser Road, Hamilton NJ 08691, USA
v021417