STARCHES FOR COSMETIC INDUSTRIES
AGRANA’S RICE STARCHES
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THE FINEST BOTANICAL POWDERS FOR COSMETICS

AGRANA Stärke GmbH has a broad range of experience with rice starches in personal care. AGRANA’s name is synonymous with refinement of NATURAL, RENEWABLE RAW MATERIALS.

HISTORY OF RICE STARCH USAGE FOR COSMETICS

In 1500 BC Chinese women used cosmetics to create and enhance the look of arched eyebrows. The eyebrows were shaded a green hue finished with powdered rice starch. In the first millennium, AD women in the Far East covered their faces with a powder derived from rice flour to make their complexions appear white as porcelain. In Japan, both men and women commonly applied this type of face powder as a sign of aristocracy and a symbol of pure internal beauty.
PARTICLE SIZE

Due to the fine particle size, rice starches are among the smallest of the vegetable powders, measuring 7-9 μm. This inherent fineness results in an extraordinary increase in surface area. Approximately 1.0 g has a surface area of 1.6 m² resulting in extraordinary adsorption and absorption characteristics.

The shape, size and appearance of AGRANA rice starch products are equivalent to those of native rice starches. They are much finer than corn or potato derived products and as a result the rice based products exhibit an extraordinary soft-touch effect. AGRANA rice starches are thus ideal to optimally cover today’s demands on both decorative cosmetics as well as those for skin and hair care.
THE PRODUCT FAMILY OF THE AGRANA RICE STARCHES

RICE NS + P.F.A. 11

Naturally hydrophilic, cross-linked starches based on rice, Non-Swelling
INCI: Dimethylimidazolidinone rice starch
EINECS: 232-679-6

RICE NS and P.F.A. 11 are produced from selected grades of rice and cross-linked using a highermolecular dimethy lethylene urea derivate. P.F.A. 11 is chemically identical to RICE NS but subjected additionally to a special sieving process (sieving at 45 μm), so that a trouble-free usage in spray applications is guaranteed to prevent clogging. Both are hydrophilic and fully resistant to boiling, non-toxic, do not stick or form a paste. They are insoluble in most solvents and stable at pH 3.5+.

FAQ: SAFETY STATUS OF DIMETHYLIMIDAZOLIDINONE RICE STARCH

RICE NS is Dimethylimidazolidinone Rice starch and is manufactured by using 1,3-Dimethyl-4,5-dihydroxy-imidazolidin-2-one which does not release any formaldehyde.

Frequently it is mixed up with similar sounding chemical names.

1,3-Dimethyl-4,5-dihydroxy-imidazolidin-2-one (CAS 3923-79-3) is used as a reagent for cross-linking and is completely different from imidazolidinyl urea (CAS 39236-46-9) or diazolidinyl urea (CAS 78491-02-8) which are based on different chemical structures, properties and uses and therefore must be differentiated.

No formaldehyde will be released by RICE NS + P.F.A. 11.
APPLICATIONS IN DECORATIVE COSMETICS

- compact powders (fine powders which gently mattes and fixes makeup)
- eye liners & brow definers
- volumizing mascara
- loose powders
- aerosols (P.F.A. 11)

Benefits of using RICE NS und P.F.A. 11 in decorative cosmetics:

- The microcrystalline structure of RICE NS provides the skin with a natural matt shimmer as found with a normal non-greasy skin. This is a notable advantage for powder make-up, as the transition between the powdered and the non-powdered skin areas remain invisible.
- Because of the extraordinary fine particle size (7-9 μm), RICE NS and P.F.A.11 exhibit extraordinary soft-touch. The large surface area permits a fine distribution of both functional and active ingredients and also guarantees effective delivery to the skin.

APPLICATIONS IN EMULSIONS

- creams and lotions
- refreshing gels

RICE NS is mixed into the aqueous phase. High temperatures from 70°C and above are beneficial and the starch particles adsorb and absorb parts of the phase. RICE NS can also be pre-dispersed in propylene glycol or an oil and thus easily added to the water phase.

The illustration shows the result with RICE NS in a sedimentation test (10 g of product are stirred in 100 ml water and the temperature is raised in increments from 40°C – 90°C) whereby the starch can settle out. This method illustrates the swelling and absorption capacity of starches during the emulsification.
Benefits of using RICE NS in emulsions cosmetics:

- Enhanced efficacy of active ingredients
- Long-lasting moisturizing effect
- Improved spreading properties of the emulsion
- pleasant and silky-soft touch
- Mattifying effect in emulsions RICE NS reduces the shininess on the skin caused by different lipophilic ingredients present in emulsions (vegetable oils and butters, petrolatum, paraffin oils, waxes)
- In natural antiperspirant agents RICE NS adsorbs perspiration released by the skin. The pores are not blocked because the particles do not swell on the skin. There is no whitening effect of the product applied on the skin.

Evidence has shown that the dispersed starch particles do not precipitate and remain evenly distributed, even after long storage.

**D.S.A. 7 (= DRY SHAMPOO AEROSOL)**

INCI: Oryza Sativa and Cetrimonium Chloride  
EINECS: 232-679-6 + 203-928-6

D.S.A. 7 is a natural active for dry hair shampoos based on a soft, surface-active rice starch with a particle size of approx. 8 μm and control sieved at 45 μm.

D.S.A.7 is free flowing and neither sticks to the can walls nor forms lumps. It remains soft in the stem, valve system including the orifice and actuators. Even after long periods of storage, the loose sediment can be finely dispersed again by lightly shaking.

Benefits of using D.S.A. 7 in dry shampoos:

- high adsorption for oil and fat
- removes the grease of the hair
- can be easily brushed out of the hair
- gives a quick cleansing effect
- results in shiny, airy and fresh hair

An optimum aerosol can filling would contain 6 - 8% of D.S.A.7®, 0.2-0.4% perfume and an aerosol propellant.

**REACH-STATUS**

Our rice starches and modified rice starches are excluded from mandatory REACH-registration.