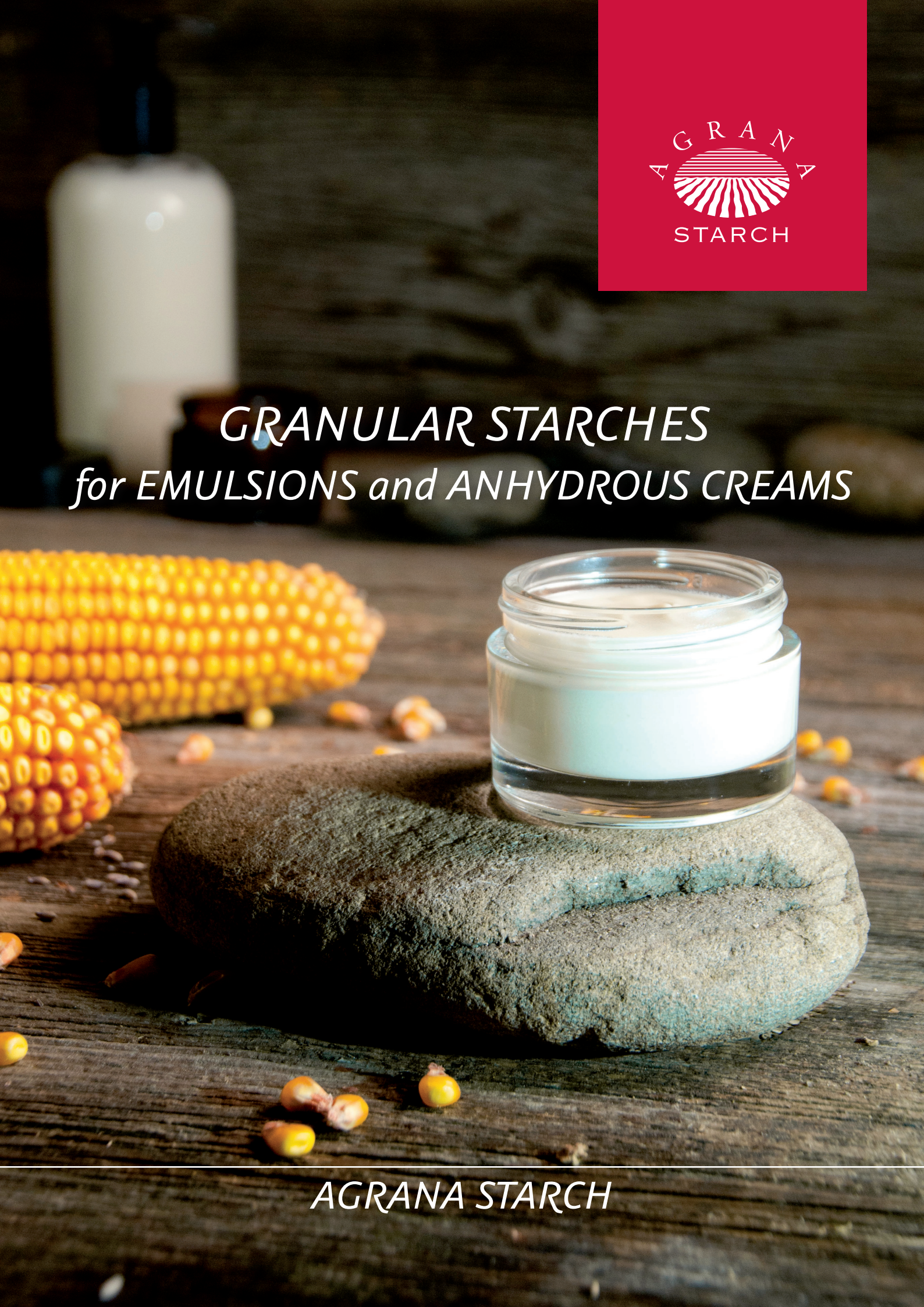

AGRANA
STARCH
GRANULAR STARCHES
for EMULSIONS and ANHYDROUS CREAMS
AGRANA STARCH



PRODUCT OVERVIEW – GRANULAR STARCHES

PRODUCT NAME	INCI	Addition of starch BEFORE / AFTER emulsification	NATURALITY
BOILING-RESISTANT STARCHES			
CORN PO4 PH "B"	*distarch phosphate*	BEFORE	COSMOS, NaTrue
RICE PO4 NATURAL	*distarch phosphate*	BEFORE	COSMOS, NaTrue
RICE NS	*dimethylimidazolidinone rice starch*	BEFORE	——
LIPOPHILIC STARCHES			
AGENAFLO 9050	*corn starch modified*	AFTER	——
AGENAFLO OS 9051	*aluminum starch octenylsuccinate*	AFTER	——
NATIVE STARCHES			
MAISITA 21.001	*zea mays (corn) starch*	AFTER	——
MAISITA 9040	*zea mays (corn) starch*	AFTER	COSMOS
REISITA NATURAL	*oryza sativa starch*	AFTER	COSMOS
TAPIOCA NATURAL	*tapioca starch*	AFTER	COSMOS
ORGANIC CERTIFIED PRODUCTS			
MAISITA 9060 – organic maize starch	*zea mays (corn) starch*	AFTER	
ORGANIC TAPIOCA NATURAL – organic tapioca starch	*tapioca starch*	AFTER	
AGENAJEL 21.387 – organic waxy maize starch	*zea mays (corn) starch*	AFTER	

ORGANIC

QUALITATIVE OPTIMIZATION of COSMETIC CREAMS

GRANULAR STARCHES

have been proven as outstanding aesthetic modifiers. Moreover, their addition to emulsion systems is a unique natural way to improve the quality of emulsions.

- pleasant skin-feel
- mattifying effect as the emulsion is quickly absorbed
- easy spreading without whitening or shininess
- reduced stickiness and greasiness

LIKELY CANDIDATES

for optimization with granular starches are

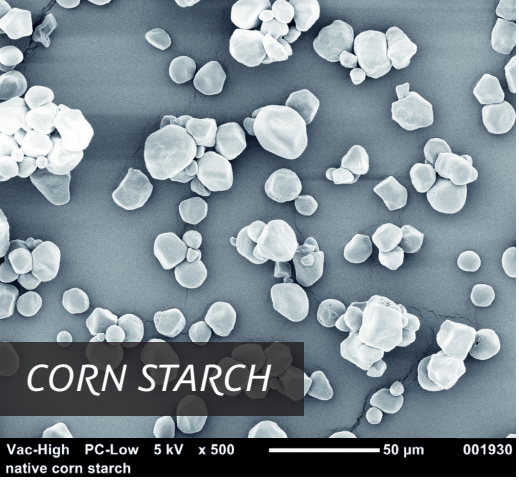
- creams and lotions
- oil-free facial serums
- sun-protection
- after-sun emulsions
- after-shave balms
- emulsion foundations
- anhydrous creams
- deodorants & antiperspirants

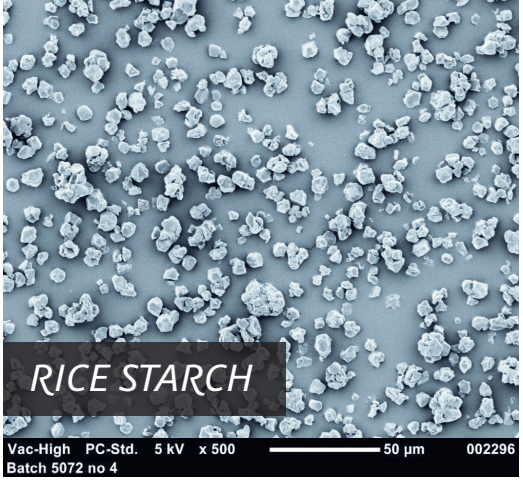
AGRANA STARCHES
are green alternatives to SILICONES and mineral-oil based ingredients like NYLON/small MICROPLASTIC

NON GMO

SUSTAINABLE PRODUCTS
- Non-GMO
- Naturally derived and safe

GREEN ALTERNATIVES
- Gluten-free
- Exempt from REACH
- Non animal tested
- Vegan



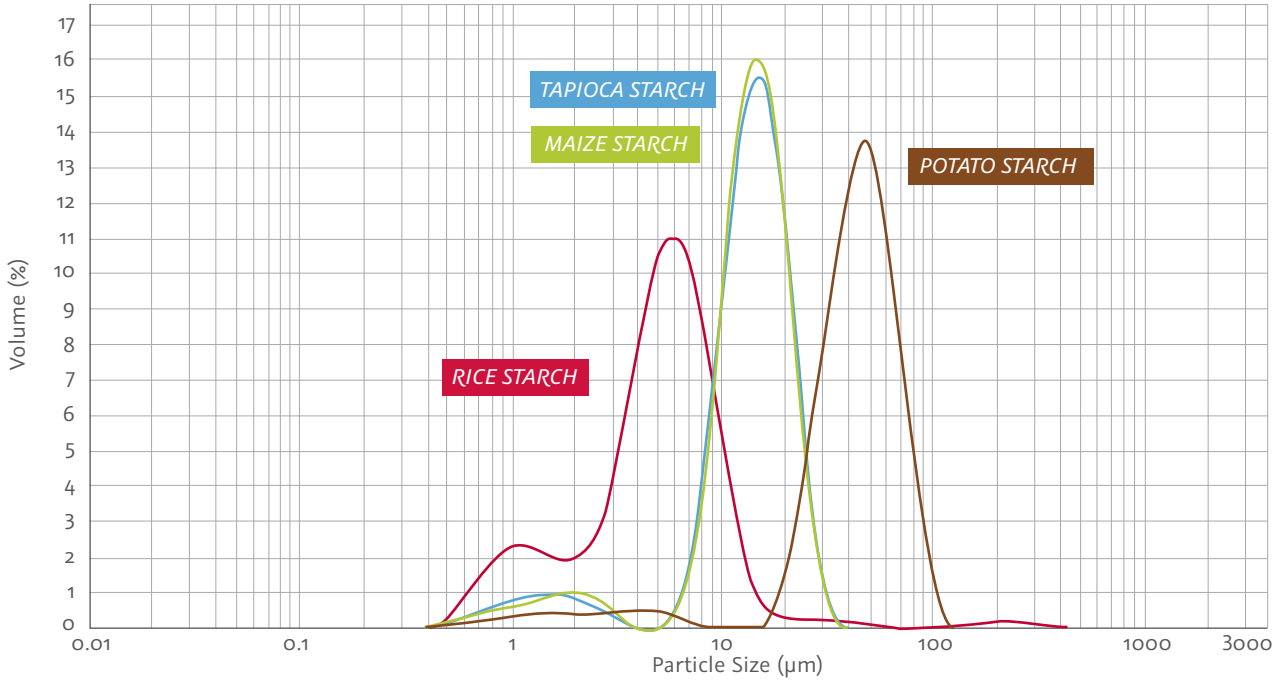


PROPERTIES of GRANULAR STARCHES in EMULSION SYSTEMS

PARTICLE SIZE and PARTICLE SHAPE

Depending on the raw material source (maize, rice, tapioca, potato) granular starches offer active surface, a natural range of particle size distribution and different particle shape. Therefore starches can be a perfect alternative for small-sized NYLON powders.

PARTICLE SIZE DISTRIBUTION



ADDITION OF STARCH

HIGH SORPTIVE POWER

The high sorptive power facilitates the adsorption of both hydrophilic and hydrophobic liquids and the active substances dissolved in them. Consequently, substances like active ingredients, botanical extracts, vegetable oils, deodorant actives, sun filters and fragrances are also adsorbed and absorbed, providing a constant release and ensuring a long-lasting effect.

EXCELLENT MICROBIOLOGICAL AND CHEMICAL PURITY

All our products are made of food-grade starches and optimized by chemical or physical treatment for cosmetic applications (see our data-sheets).

REDUCTION OF GREASINESS

Especially in natural formulations greasy and heavy textures can be a problem when natural oils and fats are used. Granular starches reduce greasiness and too heavy textures.

INCREASING EMULSION STABILITY

Practical experiences have shown that the use of these starches leads to a substantial increase in the stability of the emulsion ("Pickering effect"). Dehydrated and lipophilic starches contribute best to improve emulsion stability.

The dispersed starch particles do not form sediments even on protracted storage. Whilst a certain viscosity increase will occur it does not mean that the raw formulation needs changing nor does the packing opening need to be altered. The spreading properties are improved significantly.

Undertaking stability-testing of the emulsions by centrifuge would result in no meaningful information and therefore serves no purpose. The emulsion should be stability tested without its starch content since the absorbed starch particles possess a high intrinsic weight and would in any case be separated out by centrifugal forces (erythrocytes, for example, also sediment out when centrifuged).



ADDITION BEFORE EMULSIFICATION (= „HOT PROCESS“)

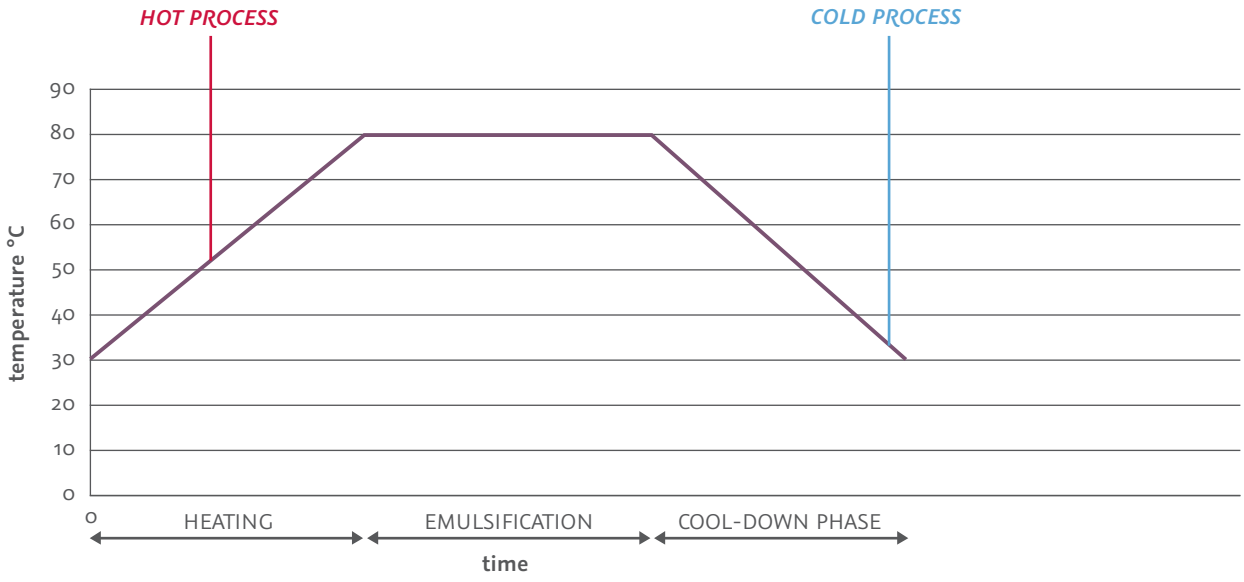
For BOILING-RESISTANT STARCHES optimum production technique is to disperse the starch in the aqueous phase and stir until emulsification occurs. Temperatures beyond 90°C (194°F) **do not influence** the properties of cross-linked starches as they are resistant to boiling.The mixture should then be allowed to stand for about 15 minutes and don't gelatinize.

The subsequent processing step is carried out using the standard procedure.

If active substances which are oily or dissolved in solvents have to be transferred to these phase depots they should be mixed with either a portion of or all the starch. After a detention time of 15 minutes, if necessary under additional stirring, this pre-mix should be transferred into the corresponding emulsion phase.

ADDITION AFTER EMULSIFICATION (= „COLD PROCESS“)

Starches which are not boiling-resistant can be dispersed in pre-emulsified emulsions immediately after emulsification – e.g. at about 45° C (113°F) – prior to commencing the cold stirring phase. This temperature should remain constant for at least 15 minutes and care should be taken that the dispersion is homogenously distributed. Optimization will depend on ensuring the temperature and stirring be maintained as long as possible.



POSSIBLE DOSAGE TIME FOR STARCHES

SWELLING CAPACITY OF BOILING-RESISTANT STARCHES

Boiling-resistant starches possess a notable swelling capacity but are resistant to gelatinization and do not become a pudding. Furthermore they can even be autoclaved without losing their spreading powers. They are stable at acidic and weakly alkaline pH-values, chemically pure, inert and compatible with standard active substances.

Pharmacists refer to BOILING-RESISTANT STARCHES with the Latin term "Amylum Non Mucinaginosum" (=ANM-starch).

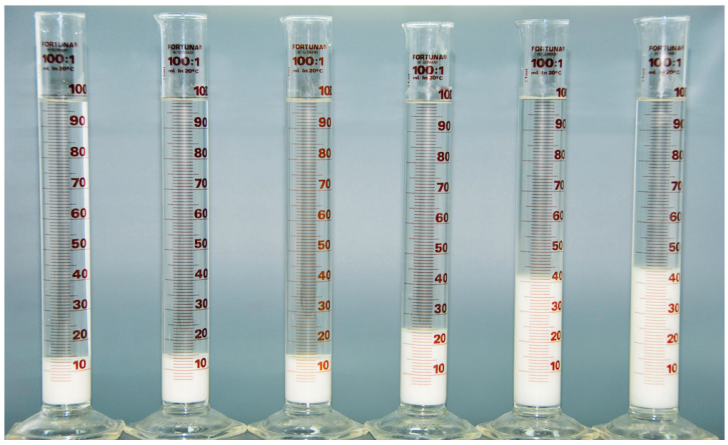
The picture shows the results of a sedimentation test: 10 g of cross-linked starch are warmed in 100 ml water under stirring for 15 minutes at the indicated temperatures from 40°C - 90°C (104 – 194°F).

Then the suspension is filled in cylinders where the starch can sediment.

This procedure demonstrates the swelling and absorption capacity of the starches during an emulsification process.

EXTENDED MOISTURISATION

As the emulsified fluid is absorbed during emulsification process it then let back down on skin.



ABSORPTION CAPACITY OF CORN PO4PH "B" IN THE WATER AT INCREASING TEMPERATURES

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