

Marcus NAT Wax for Water Based Emulsions ¹

Emulsions for Industrial And Food Coating Applications

Eazy to Emulsify Naturally Derived Waxes

Marcus NAT 155 and NAT 180 can be easily converted into anionic, non ionic or cationic emulsions.

Due to the high degree of functionality these waxes readily saponify and make stable emulsions through either direct emulsification or homogenization.

Because these polymers are derived from natural oils, they are good candidates for food based applications such as fruit coatings (consult specific FDA regulation for limitations).

Marcus NAT waxes have good barrier properties yet will saponify under alkaline conditions to allow for easy dispersion.

Marcus NAT 155 and NAT 180 - Typical Properties

Property	NAT 155	NAT 180
Color (Lovebond)	1.5	4 Max
Iodine Value (cg/g)	5	5 Max
Acid Value (mg/g)	1	1 Max
Saponification (mg/g)	180	185-195
Melt Point (° F)	155 - 160	180-185
Hardness (dmm)	2	2

Marcus NAT waxes are a new generation of naturally derived waxes that make ideal substitutes in many applications for petroleum, synthetic and other more expensive natural waxes.

Emulsification procedures are available for converting **Marcus NAT** waxes into high solids, stable anionic, non ionic and cationic emulsions –contact Marcus Oil & Chemical.

Unlike most traditional waxes, **Marcus NAT** waxes can be saponified to varying degrees allowing for both emulsification and subsequent dissolution under alkaline conditions.

Applications for **Marcus NAT** wax emulsions include:

PAPER COATINGS

When **Marcus NAT** wax emulsions are applied in coating applications, inks and other coating material are easily removed during re-pulping under mild alkaline conditions The newsprint is easier to de-ink and the addition of other de-inking surfactant can be greatly reduced.

Additional benefits include reduced clean-up time and reduced surfactant needed for de-inking.

FRUIT COATINGS

Marcus NAT wax has good barrier properties to reduce transpiration and their natural origin makes them appealing for use on fruit.

TEXTILE EMULSIONS

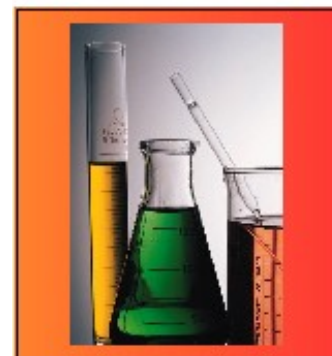
Use in softener package or in sizing where ease of removal is desirable.

Other applications for **Marcus NAT** waxes include:

**POLISH
ADHESIVE APPLICATION**

**BOARD EMULSIONS
INKS AND COATINGS**

1. Patents Pending—The manufacture and use of hydrogenated vegetable wax emulsions is covered by pending US and International Patents



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