MARCUS OIL & CHEMICAL

Marcus Oxidized Polyethylene Wax for Water based Emulsions

Pressure Direct Emulsification of Marcus 3400 and 3500 Polyethylene

Pressure Direct Anionic Emulsion Preparation

The pressure direct emulsification technique involves charging all ingredients into an agitated pressure vessel and making the emulsion under pressure.

This process has several advantages over atmospheric emulsification:

- *Produces an emulsion with greater uniformity and consistency*
- *Reduces batch cycle time*
- *Facilitates emulsions with higher solids*
- *Eliminates or reduces volatilization of key raw materials*

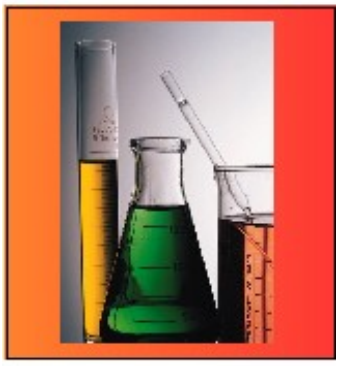
This latter point allows for a greater variety of raw materials to be

Anionic Formulation (25% solids)

	Percent
Marcus M3500 or M3400	19.1
Fatty Acid	3.8
Amine	3.8
Water	65

Comments:

Fatty acid is Oleic or tall oil. Morpholine can be used for amine.



Procedure:

Charge water to the reactor and then add other ingredients while agitating. Seal the reactor while continuing to agitate and commence heating to a temperature of 125-135°C. Maintain temperature and pressure with agitation for 15-30 minutes. Remove heating and begin cooling . For best results cooling is done quickly (shock cooling) while releasing pressure through an external heat exchanger such as a coil or plate heat exchanger. Rapid cooling, especially through the transition point of the wax, ensures a fine particle size emulsion is formed..

Following cooling to room temperature a bactericide can be added to aid shelf life of the emulsion. The emulsion should then be discharged and filtered.

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