

# Which Emulsifier to Use Where

Type	Emulsion Stability	Starch Complexing	Dough Conditioner	Crystal Modifier	Aeration
Saturated mono- & diglycerides	2	1	4	3	1
Unsaturated mono- & diglycerides	2	3	4	3	2
Propylene glycol mono- & diesters	5	2	5	1	1
Propylene glycol mono- and diesters and mono- & diglycerides	3	1	4	1	1
Sorbitan monostearate	2	5	5	1	3
Polysorbate 60	3	2	1	3	1
Polysorbate 65	3	3	3	3	2
Triglycerol monostearate	3	3	3	3	1
Hexaglycerol distearate	1	3	3	1	2
Stearoyl-2-lactylates	1	2	1	5	2
Liquid lecithin	3	3	3	1	4



## The Golden Rules of Emulsifier Selection

- For emulsions, if you don't have a clue dose the emulsifier at 5% of the amount of fat present. Up to 10% for an Oil-in-water emulsion.
- Use unsaturated emulsifiers with unsaturated fats.
- Mixtures work better when stabilising foams and emulsions.
- Emulsifiers promote dispersion of the phase in which they do not dissolve very well. (e.g. Protein dissolves in water > oil-in-water emulsions)
- HLB and most other rules do not always work when protein and polysaccharides enter the system.
- Only saturated monoglycerides complex with starch.
- Emulsifier form affects functionality.
- Emulsifier preparations frequently contain unsaturation and this can lead to off flavours.
- Emulsifier preparations vary from manufacturer to manufacturer.
- When you find a non-obvious usage of emulsifiers then the function is often related to starch or protein.
- Order of addition can be critical.
- Processing steps which introduce air or shear can substantially change emulsifier function.