

Premix Summary

► Characteristics of a good premix

Contains appropriate and most stable forms of vitamins for application

- Pelleting, mash, water soluble, extruded
- Good flowability and mixability
- Consistent particle size
- Prevents very large or very small particles from segregating out
- Consistent density among ingredients
- Better handling, better flowability
- Adequate amount of organic carrier (wheat middlings or rice hulls)
- Maximum moisture content of 12%
pH range of 4 to 6 (for vitamin stability)
- Mineral oil at 0.5 or 1% to reduce dustiness

► Factors affecting premix quality

Flowability

- Flow test
- Measure angle of repose

Hygroscopicity

- Humidity chamber

Uniformity

- Dustiness
- Particle size distribution
- Particle separation (segregation)

► DSM Premix Ingredients

We currently have >500 actively purchased or quoted DSM and 3rd party ingredients in our portfolio;

- Vitamins
- Minerals (micro and macro, chelates)
- Acidifiers, antioxidants, mycotoxin binders
- Pre (fiber) & probiotics (bugs), yeast, yucca
- Roughage products, including organic carriers
- Flavors, essential oils, pigments, enzymes

Nutritional Services is responsible for:

- Maintenance of 3rd party product documentation and databases
- Organizing approval and setup of new, 3rd party ingredients. Process involves coordinating many groups from quality, safety, environmental and regulatory from the local, regional and global levels.

Premix Quality and Effectiveness

Customer Requirement	Premix Plant Requirement
Quality	Optimum batch size
Meets specifications	Good handling
Ingredients	Consistent supply
Good handling	Worker safety
Supporting documentation	Suitable for equipment
Traceability	Cost effective
Nutritional expertise	
Cost effective	

Learn more about premixes at dsm.com/anh-na:



**DSM Premix
Quality Lab**



Vitamin Stability



**Interpreting Vitamin
Analytics in Premix**