



## Feed Energy's Quality Assurance Program

### Sources of Quality Raw Materials

All of Feed Energy's suppliers are thoroughly screened before they are included on our list of accepted suppliers. We do not buy material if we do not know the source of the material. We determine the safety and usefulness of the product by:

- specifying the parameters of the product
- requesting a series of normal production samples
- testing for pesticides, PCBs, fatty acid profile, moisture, insolubles, unsaponifiables, free and total fatty acids, as well as other tests

If the supplier's product is deemed safe and useful, we enter into a probationary period when we buy no more than a truckload per week for the first ten loads. Feed Energy's quality control staff will isolate and test these loads to determine if the product is consistent with the sample product screenings.

At the conclusion of successful probationary periods, we accept a supplier's material on an ongoing basis, sampling for pesticides and other critical parameters. Finally, we retain a summary record of all of our suppliers' analyses for yearly review with their management and quality control teams.

### Animal Fats

Animal fat (hog grease, beef tallow, poultry grease) is purchased directly from packing plants, such as Con Agra, Morrell, Hormel and Tyson. While often more costly, these materials have a consistent quality that is desirable for our finished products.

We do not purchase materials from independent renderers. Why? Renderers use various species of dead animals, often with unknown causes of death, and restaurant frying fats. Restaurant grease is generally inconsistent as it undergoes substantial and negative chemical changes to its fatty acids.

Both restaurant grease and deadstock come from numerous sources and result in exposure to safety problems such as chemical residues or viruses not eradicated in the cooking processes. This is not an acceptable risk.

### Vegetable Oils

Acidulated vegetable oil is produced at our own production facilities in Des Moines, Sioux City and Pacific Junction (Iowa). This allows us to control the oil quality and maintain a consistent, refined product for our blending operations.

We purchase raw materials for our acidulation plants from large vegetable oil refineries, such as ADM, Bunge and Cargill. As with all of our products, raw materials are tested regularly for pesticides and PCBs and for consistency of fatty acid profiles and processing quality.

The vegetable oils we use contain approximately 1200 ppm mixed tocopherols, strong natural antioxidants.

## **Feed Energy's Quality Assurance Program (con't)**

### **Quality Control Procedures**

To ensure that quality products are delivered to our customers, Feed Energy has stringent quality control and assurance procedures throughout our production and testing processes. Our quality control laboratory is administered and staffed by trained chemists and engineers who develop and conduct a variety of product tests to make sure that all the raw materials we receive, as well as the products we deliver, meet our quality standards. The testing procedures and results are regularly verified using scheduled control and check samples tested by an independent laboratory.

- All incoming and produced materials are segregated by tank for identification purposes throughout production and testing processes in accordance with Safe Feed/Safe Food Certification.
- All materials are subjected to multistage separation and purification processes, which include filtration and thermo-gravimetric settling to assure removal of foreign matter.
- All materials are sampled and tested using the standard industry process determined by the American Oil Chemists' Society (AOCS).
- All incoming, produced and outgoing materials are tested by Diversified Laboratories, and the critical results are reported to us instantly. Tests include:
  - 55 separate pesticides · PCBs · Total & free fatty acids · Moisture · Metabolizable energy
  - Iodine value · Unsaponifiables · Insolubles · Fatty acid profile · Stability
- All of the ingredients must pass stipulated federal regulations for pesticides and PCBs before being utilized in our production process, and nonconforming materials are isolated and returned immediately.
- Future shipments from suppliers with nonconforming materials are suspended until the origin of the nonconformity is investigated.
- Customers wishing pesticide analysis sheets or loading samples to accompany shipments can request this option.
- Samples of all incoming and outgoing materials are retained for a period of one year in accordance with our Safe Feed/Safe Food Certification.
- Production orders, incoming storage reports, and the laboratory quality control data are permanent records.

### **Blending Control**

Blending calculations for production orders are made using the results from both our in-house laboratory and third party laboratory, based on proprietary formulas prepared for each batch of finished material. The formula is prepared using the fatty acid profiles of all the materials in the blend and computed to provide the correct fatty acid profile of finished products—all driven by the customer's specifications for metabolizable energy (ME).

- Uninterrupted product supply is assured as we ship from one tank while blending and testing in others.
- Blend formulations and finished product analyses are verified prior to releasing shipments, and the reports are archived and used for statistical process control.