

Making
life better
for animals,
makes
life better

Elanco

TM



It all starts with animals and the people who care for them

At Elanco, we believe that healthier animals can be a solution to some of the world's significant challenges.

We're a focused animal health company, positioned to create value for farmers, veterinarians, pet owners, our stakeholders and society as a whole, making a difference in some of the world's greatest challenges – from malnutrition, obesity, social isolation and mental health to environmental health and sustainability. Because making life better for animals, makes life better.

Food and Companionship **Enriching Life**

Customer | Culture | Cause



Elanco Clinton Laboratories

Plant Opens
1970

60+ Buildings

380 Employees
4 Shifts

640 Acres



Product Areas of Focus

We are an established leader with flagship brands and a global presence. We're focused on investing and innovating in the animal health priorities that mean the most to our customers and the animals in their care.

COMPANION ANIMAL



**Companion
Animal Disease
Prevention**



**Companion Animal
Therapeutics**

FOOD ANIMAL



**Food Animal
Future Protein
& Health**



**Ruminants
& Swine**

Products at Clinton Labs

 **Interceptor**
(milbemycin oxime)

 **INTERCEPTOR[®] PLUS**
(milbemycin oxime/praziquantel)

 **Comfortis**
(spinosad)

 **Triflexis[®]**
(spinosad+milbemycin oxime)

 **Cheristin.**
for cats
spinetoram

 **Capstar[®]**
(nitenpyram)

Elanco
 **Rumensin[®]**

Elanco
 **Coban[®]**

Elanco
 **Elancoban[®]**

Elanco
 **Skycis[®]**

Elanco
 **Tylan[®]**

Elanco
 **Maxiban[®]**

Elanco
 **Monteban[®]**

 **Denagard[®]**
tiamulin hydrogen fumarate
Take pride

Elanco
 **Hemicell[®] HT**

Elanco
 **Hemicell[®]**

Elanco
 **Larvadex[®]**

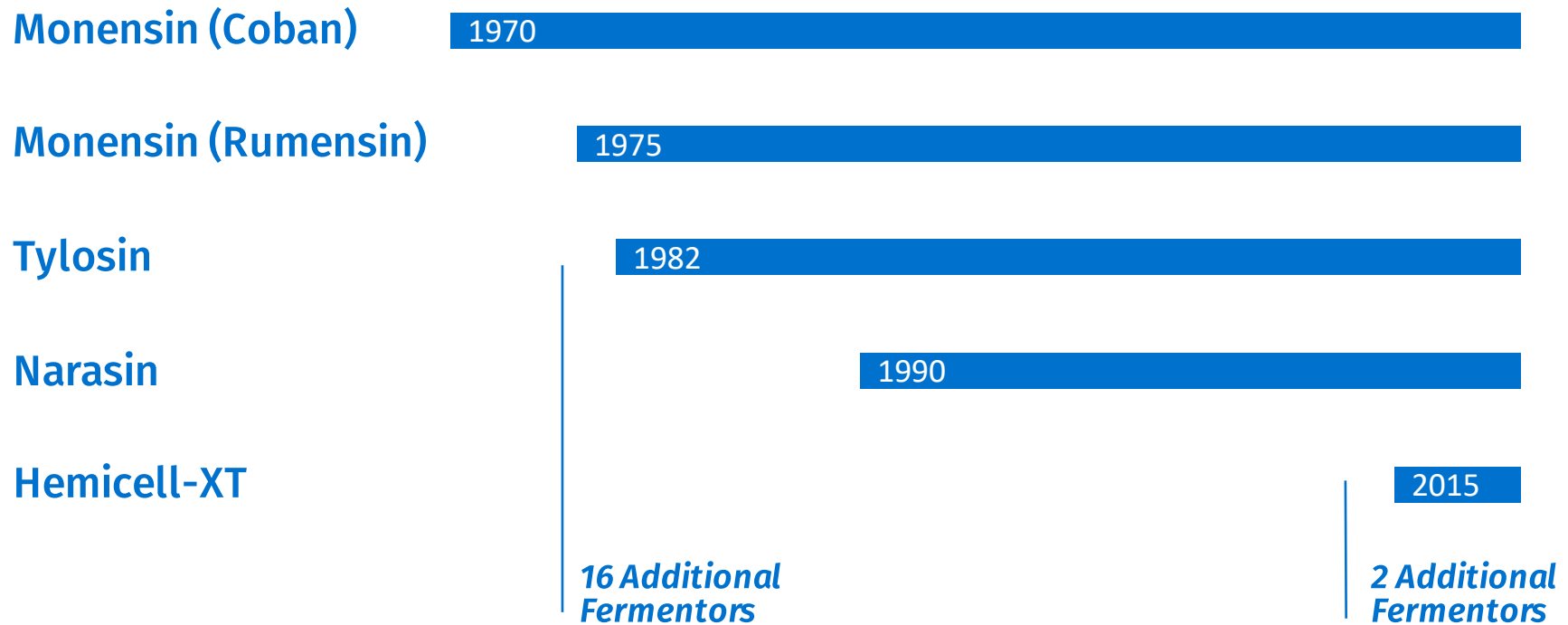
PRODUCTS MADE AT CLINTON

Monensin API*	
Rumensin®	Cattle, Dairy
Coban®, Elancoban®	Poultry
Monensin granulated	API for CMO's
Monensin sodium crystal	Cattle
Narasin API*	
Monteban®	Poultry
Maxiban®	Poultry
Skycis®	Swine
Tylosin API*	
Tylan®	Cattle, Swine, Poultry
Enzymes	
Hemicell®-XT	Poultry

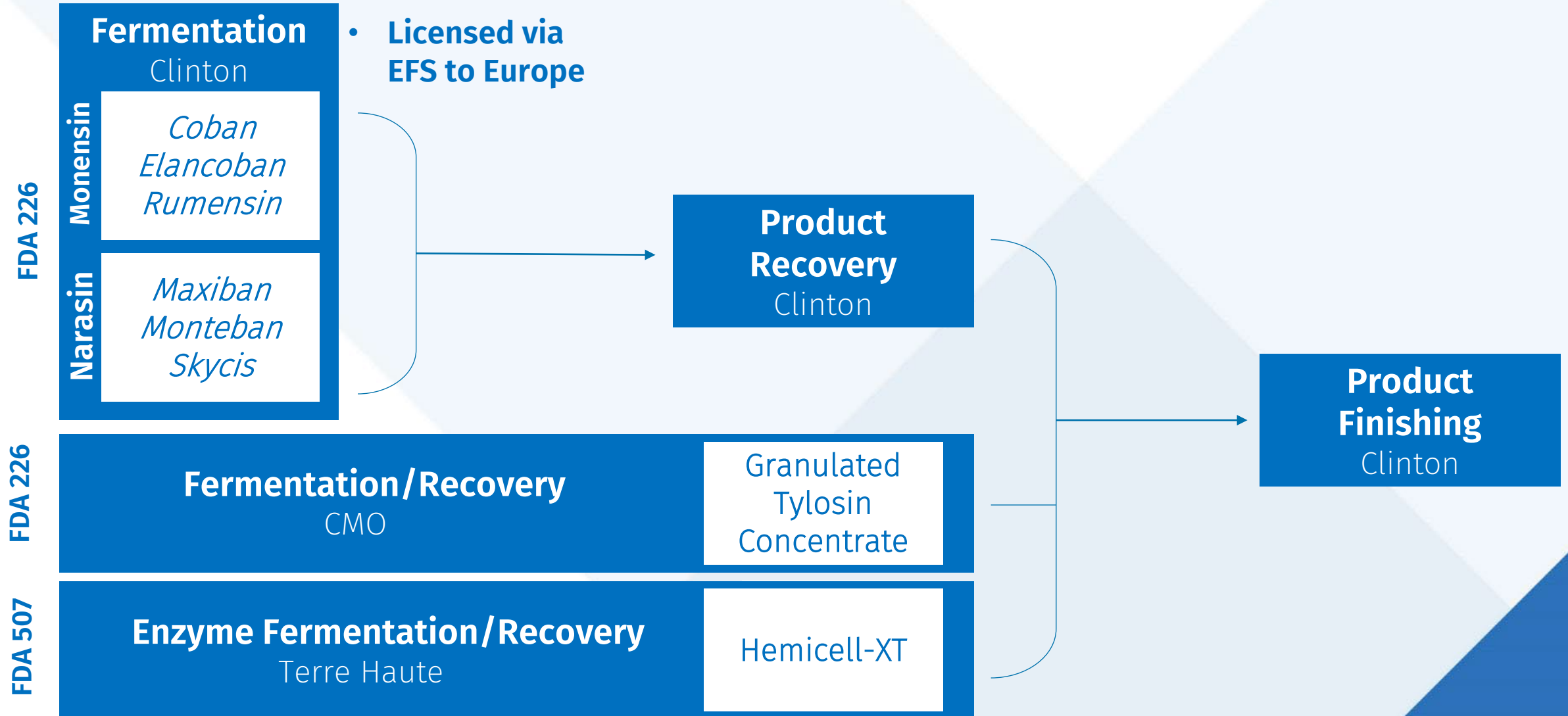
*API, Active pharmaceutical ingredient.

Product Timelines

In 1970, the site was planned as a pharmaceutical fermentation facility for penicillin.

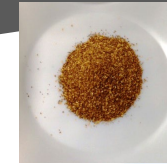
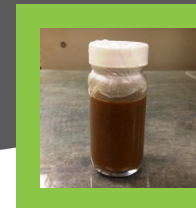


Product Flow – Food Animal



Fermentation

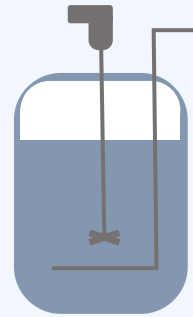
Cell Growth/Produce Product



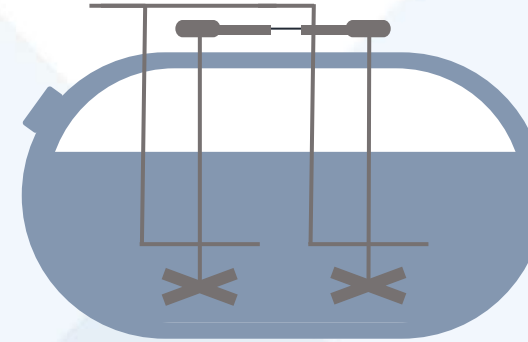
Frozen Cell Culture



Shake Flask



Bump Tank



Fermentor

Cell Growth

Producing Product

State of the art cell culture bank

No foreign or recombinant DNA

Classical mutation of strain selection

Medium Qualified and sterility checked at transfer

Sterility checked every 6 hours and prior to transfer

Computer monitored/controlled parameters

Temperature

pH

Dissolved Oxygen

Respiration

Pressure

Parameters monitored off-line

Agitation/Aeration

Sterility Checked Daily

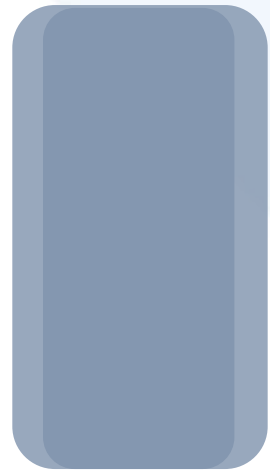
Lipids/Potency every 24 hrs

NH₃ every 12 hrs

Dissolved Oxygen

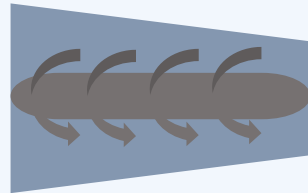
Recovery

Concentrate



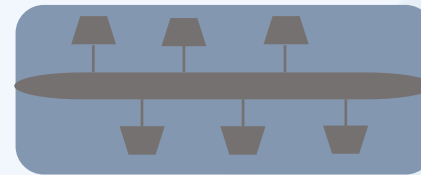
Evaporator

Crude Intermediate

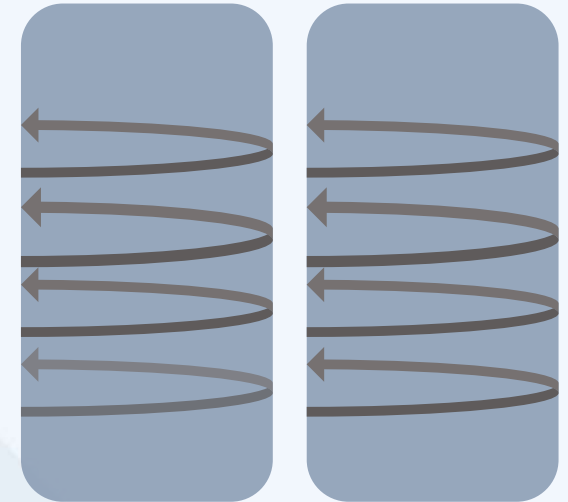


Centrifuge

Diluent



Mixer



Dryers

Concentrate

Mix

Dry

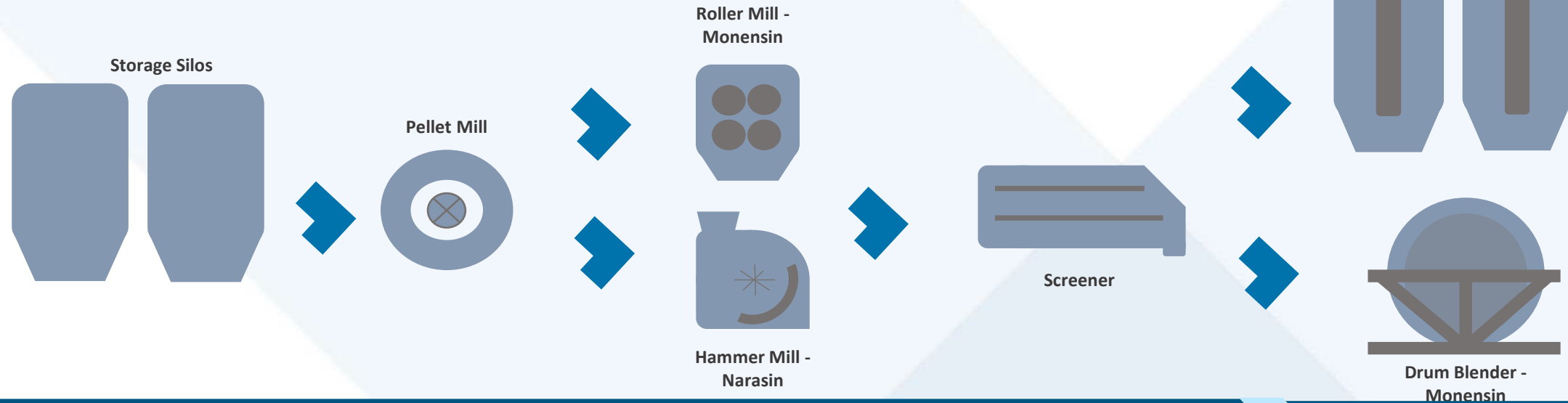
Potency, Solids, Density Checked every 6-12 hrs

Potency monitored every 12 hours

Potency, ash, and moisture measured every 12 hrs

Granulation

Consistent Particle Size and Potency



Intermediate Storing

Pelleting

Crushing

Screening

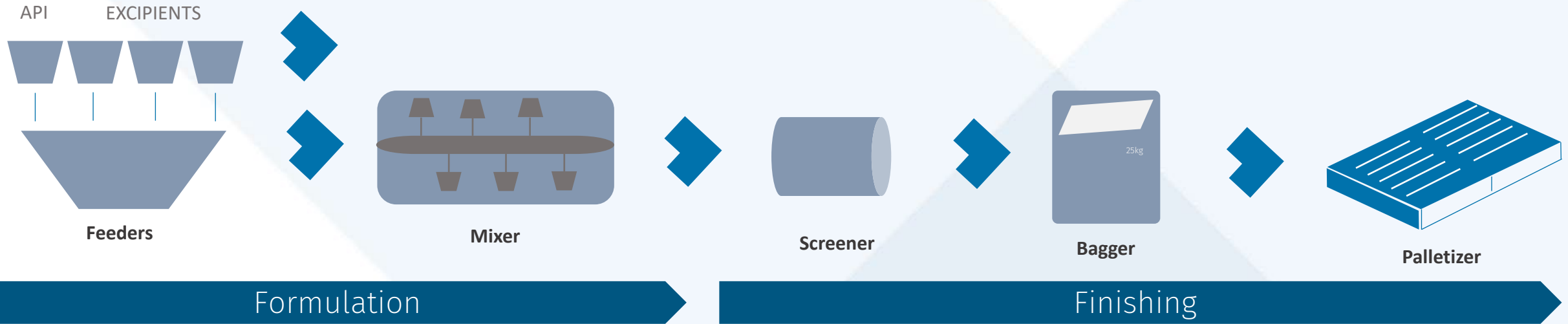
Blending

Pellet Temperature
Pellet Hardness
Volatiles - Hourly

Particle Size

Particle Size
API Potency
Blend Times
HOMOGENEITY

Form & Finish



Automated loss-in-weight rate calculations

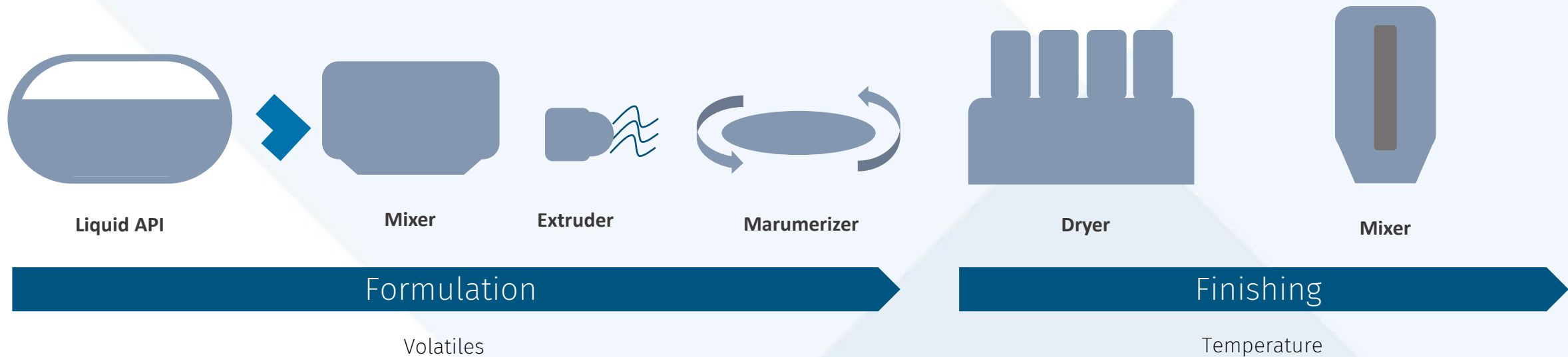
Diversion if rates are not met

Bag Weight Verification

Samples across a batch

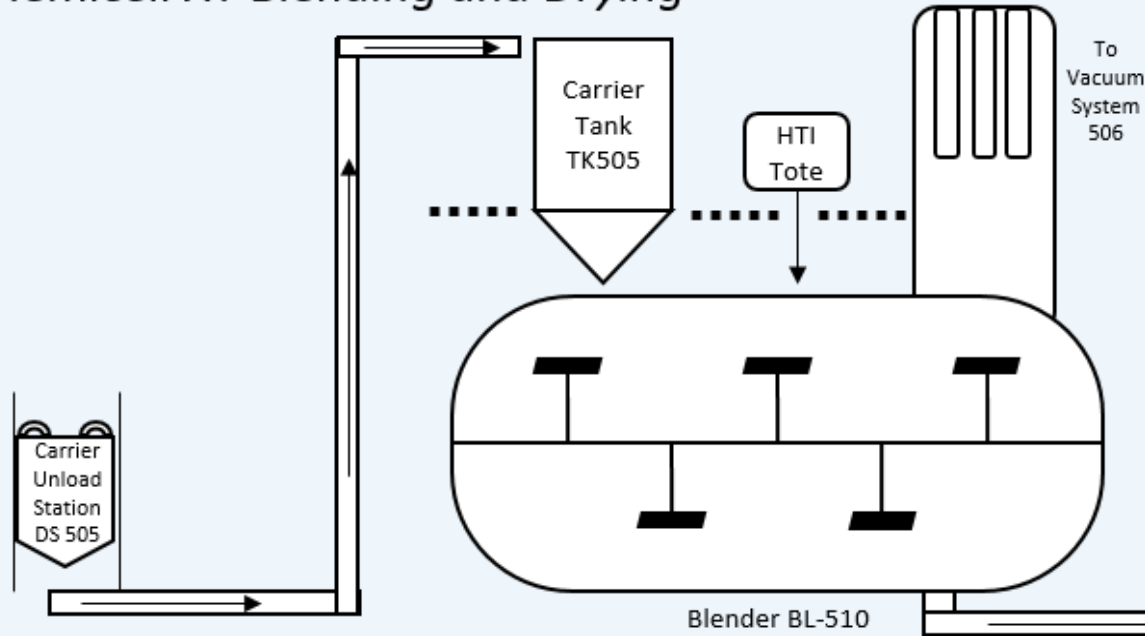
Final Batch Testing

Granulation-GTC

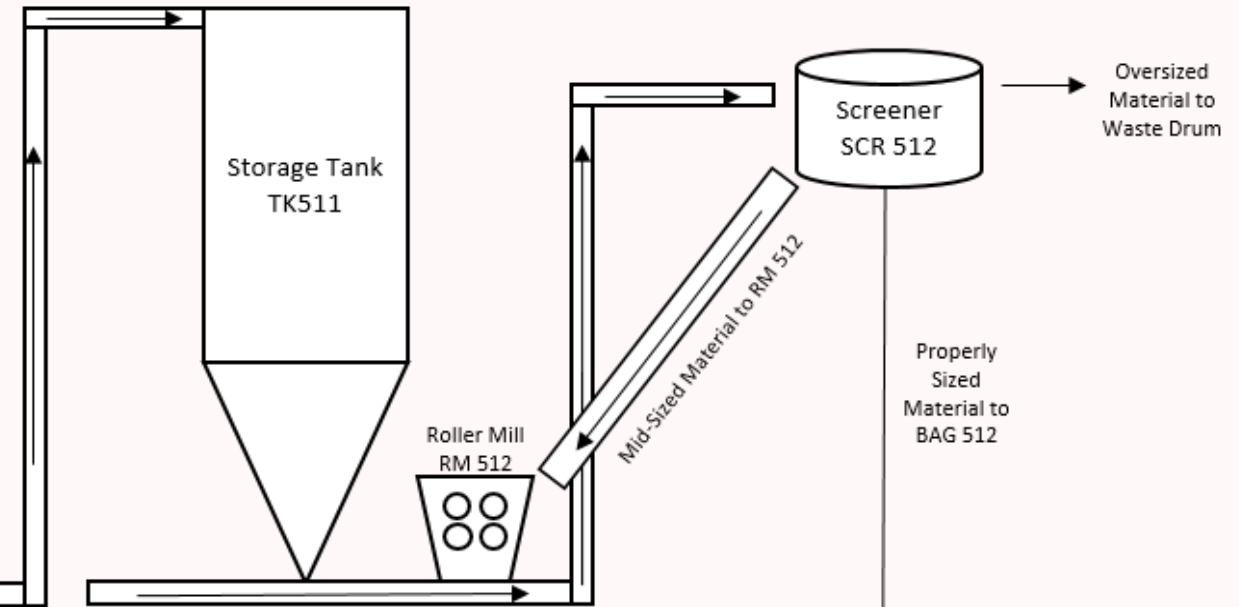


Hemicell XT

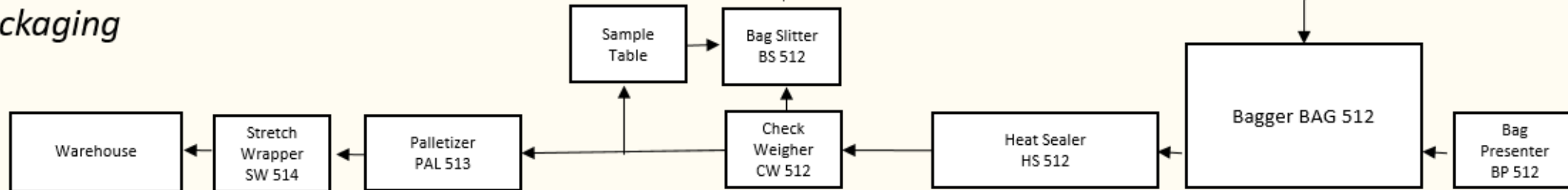
Hemicell XT Blending and Drying



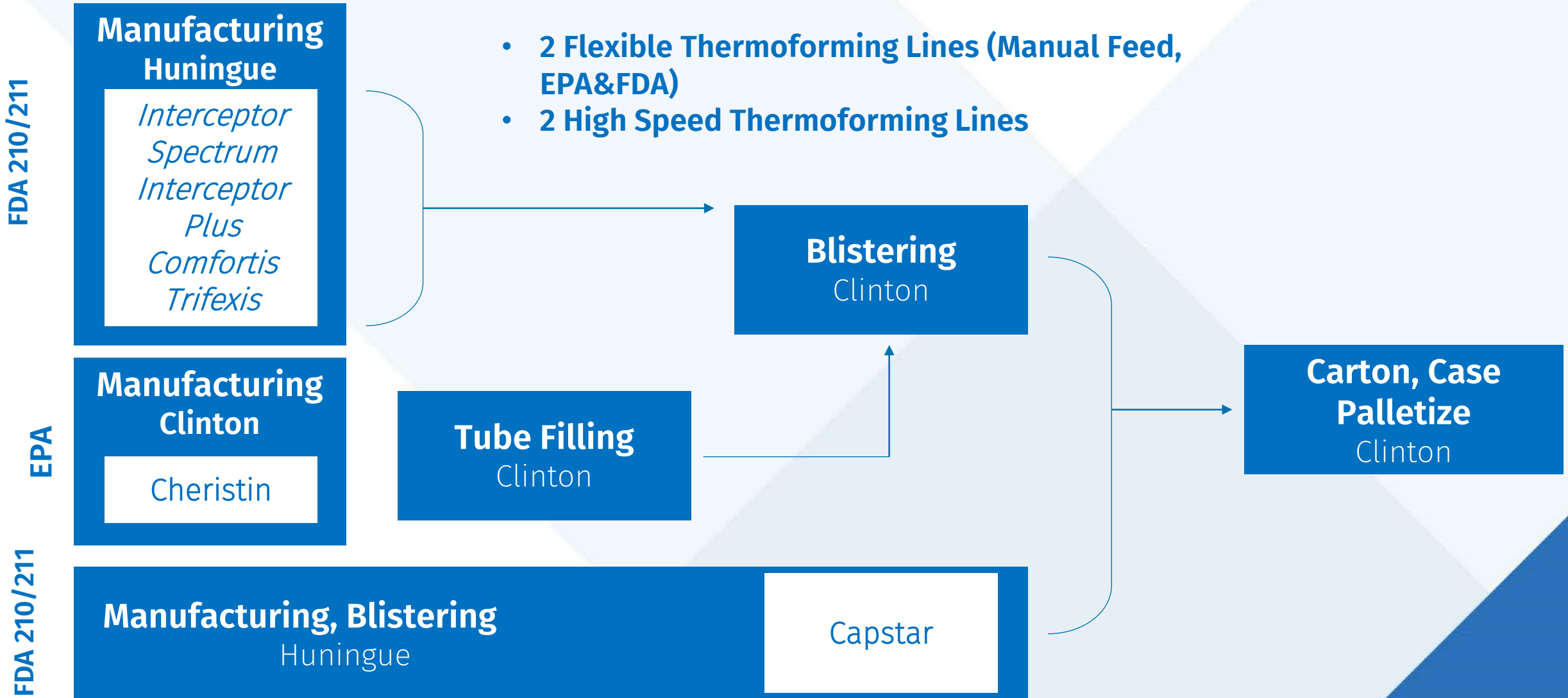
Hemicell XT Sizing and Screening



Hemicell XT Packaging



Product Flow – Companion Animal



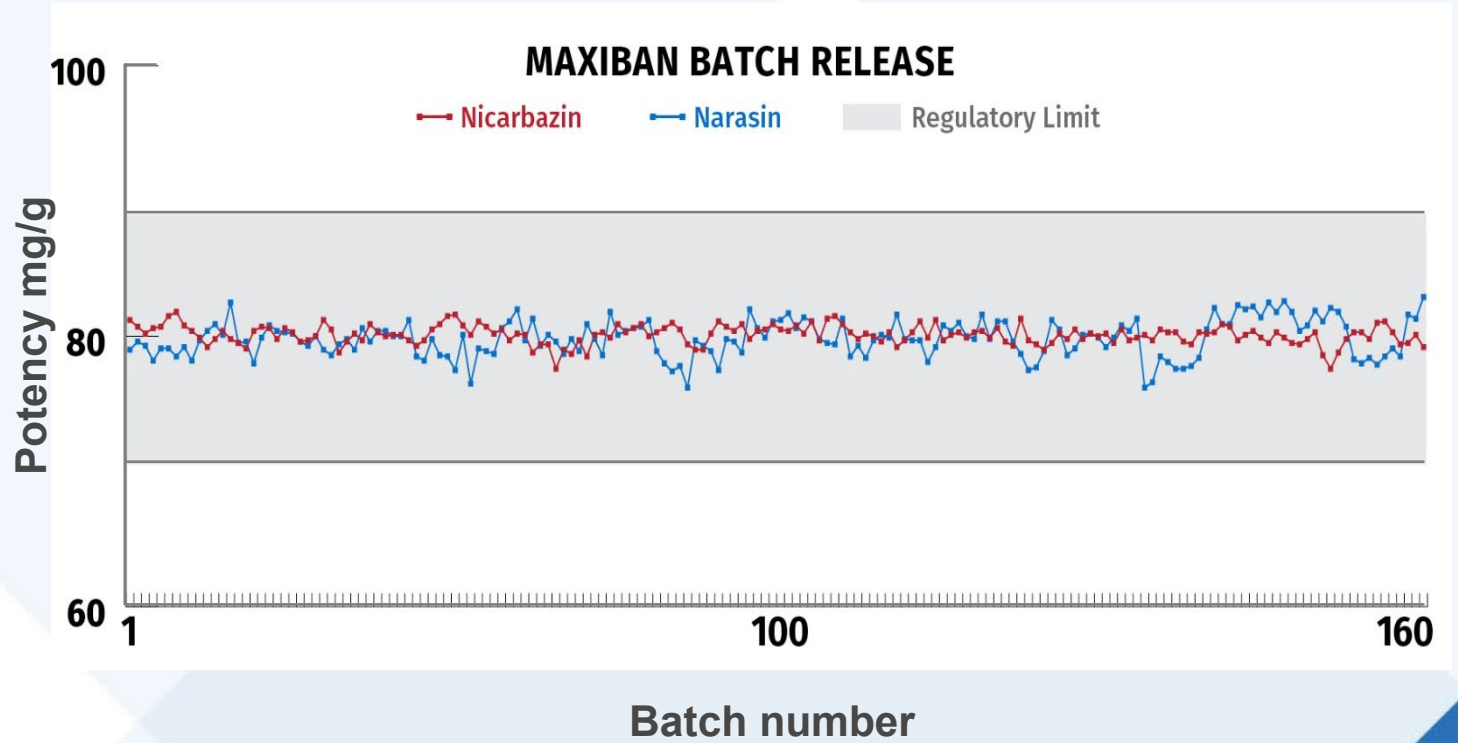
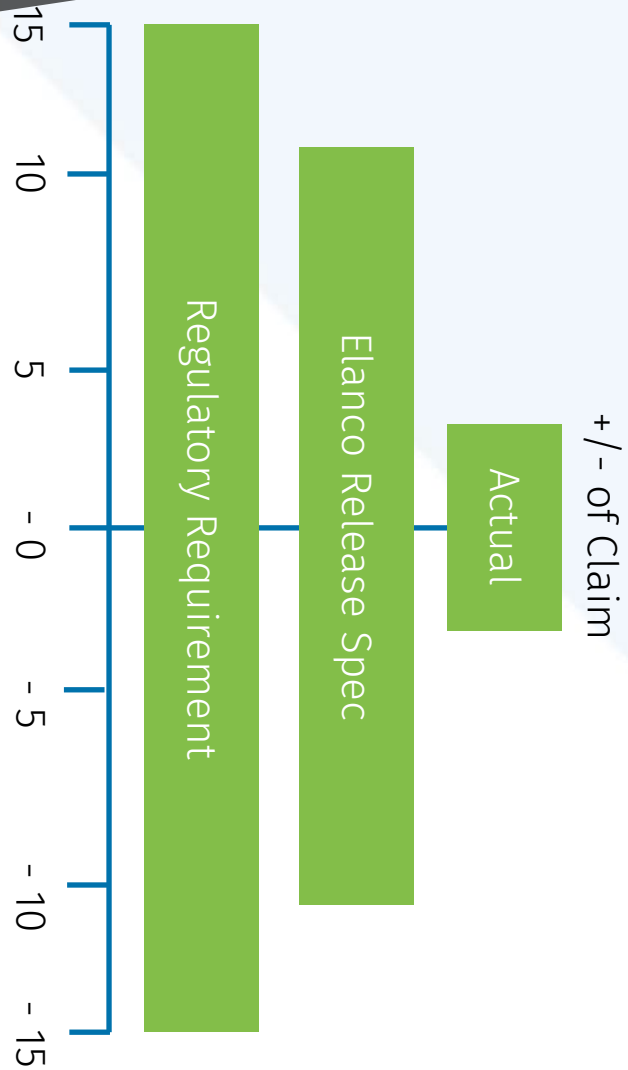
Consistency

Particle Size

- Consistent Particle Size = Even Dispersion in Final Feed
- Batch Homogeneity (CV)
- Accurate Dosing
- Reduces Airborne Particulates
- Reduces Carryover Batch to Batch

Consistency

Potency



Methods



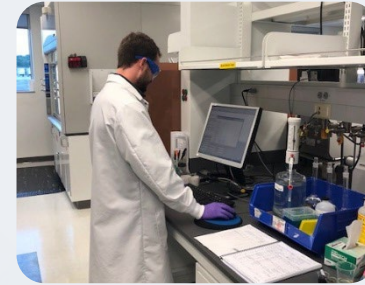
Raw
Materials
1,000
assays
per
month



In-
Process
7,500
assays
per
month



Final
Product
2,000
assays
per
month



Stability
Lab
100
assays
per
month

Methods are validated to monitored and ensure control.
Clinton runs over 10,000 assays per month

GMP Guidelines

Validated processes, equipment, methods, cleaning, and computer systems

Established critical process parameters (proven acceptable ranges)

Procedures/methods/manufacturing instructions (consistency)

Batch disposition based on Critical Process and Quality Parameters

Process deviations/change controls documented management systems

Training curriculum for each individual employee

Dependability

Purchased Raw Materials



Approved Vendors



Periodic Audits



Controlled
Transport



Dedicated
Storage



Meet
Specifications



QA Approval



Ruminant By-
Product Free

Quality Always



✓ Regulatory Commitments

✓ Process Flow Documents



✓ Process Validations

✓ Batch Records



✓ Stability Program

✓ Annual Quality Review



ElancoTM

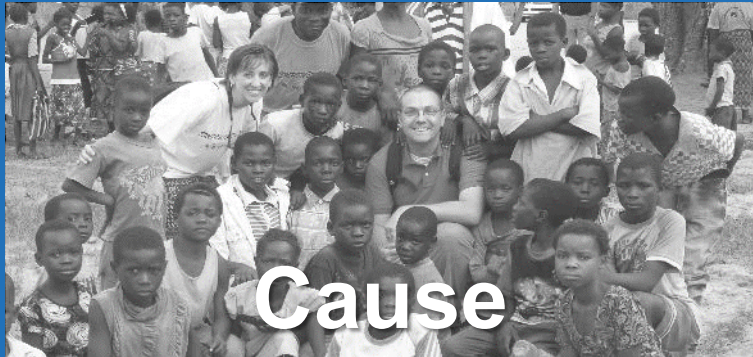
Food and Companionship **Enriching Life**



Customer



Culture



Cause