

North American Rendering

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The Rendering Industry (U.S. and Canada)

- 273 facilities in the U.S. and 29 in Canada
- \$10 billion annual revenue
- 25 MMT (56 billion lb) raw material each year
- 70 million kg raw material each day



What is Rendering?

Rendering is Cooking and Drying.

Rendering is Recycling.

Rendering is Essential to Public Health.



Rendering Plant



Rendering Plant—Up Close



Rendering Plant—Up Close



U.S. Animal Agriculture Annual Production

- 35 million cattle (49% of live wt. not used for human food)
- 100 million hogs (44% not used for human food)
- 8 billion chickens (37% not used for human food)
- 280 million turkeys (36% not used for human food)



The modern rendering industry invests heavily in odor control and air pollution equipment.





The modern rendering industry invests heavily in modern equipment to control water pollution.

The industry converts more than 25 MMT (56 billion lb.) of animal by-products into usable commodities annually.

- Highly valued protein supplements for livestock, poultry, pets
- Tallow for the manufacture of fatty acids and as a source of energy in feed rations.



Rendering is Recycling

Today's industry produces approximately 9 MMT (20 billion pounds) annually of finished rendered products, continues to grow, and is integrated into the dynamic and productive agricultural system.



U.S. Production of Rendered Fats

Product	2010	2011	2012
<i>Inedible Tallow</i>	1,511.2*	1,486.6	1,453.2
<i>Edible Tallow</i>	827.6	886.7	812.0
<i>White Grease</i>	572.7	580.7	593.9
<i>Choice White Grease</i>	511.3	518.4	530.3
<i>Lard</i>	61.4	62.2	63.7
<i>Yellow Grease</i>	868.8	906.4	885.0
<i>Poultry Fat</i>	471.4	475.2	474.8
<i>Total</i>	4,251.8	4,335.7	4,218.8

*Thousands of metric tons (metric ton = 2240 lb.)

Source: Render Magazine April 2013 (Kent Swisher). www.rendermagazine.com

U.S. Production of Rendered Proteins

Product	2010	2011	2012
<i>Meat and Bone Meal</i>	2,244.7	2,272.9	2,261.5
<i>Poultry By-product Meal</i>	1,178.6	1,188.1	1,186.9
<i>Feather Meal</i>	603.5	608.5	608.0
<i>Total</i>	4,026.7	4,069.5	4,056.4

*Thousands of metric tons (metric ton = 2240 lb.)

Source: Render Magazine April 2013 (Kent Swisher). www.rendermagazine.com

Protein Meals – 9 billion pounds*

125 AAFCO-defined animal by-products

- Meat Meal
- Meat and Bone Meal (can be species specific)
- Blood Meal (Flash/Spray/Ring/Batch Dried)
 - Can be whole or only hemoglobin
- Poultry By-Product Meal
- Poultry Meal
- Hydrolyzed Poultry Feather Meal

*4 Million Metric tons



The rendering industry fits perfectly with Sustainable Agriculture by processing by-products of animal agriculture into valuable feed ingredients for livestock rations.



Raw Materials

- Offal
- Bones and fat
- Blood
- Animals dead on arrival, in transit or on farms
- Restaurant grease
- Feathers
- Recalled meat



Turning This:



Into This:



Examples of a Few Finished Products

**Stabilized Poultry
Fat**

**Hydrolyzed Poultry
Feather Meal**

**Stabilized Pet Food
Poultry Fat**

**Stabilized
Poultry
Protein Meal**

**Low Ash Pet Food
Poultry Protein Meal**

**Pet Food Poultry
Protein Meal**



The Rendering Industry Commitment

- Make Clean Product
 - Keep it Clean



Rendering is Cooking and Drying

- Continuous flow or batch
- Steam cookers
- 115° to 145° C. for 40 to 90 minutes (245° to 290° F.)
- Inactivation of bacteria, viruses, protozoa, and parasitic organisms.



Continuous Improvement for Renderers

Animal Protein Producers Industry (APPI)

- Process Control
- Rendering Code of Practice
- Continuing Education



Rendering Code of Practice

- HACCP based program
- Establish process controls
- Accreditation to verify the controls are in place
- Participation is voluntary
- Realities of the marketplace
- More than 110 rendering plants certified

Rendering Code of Practice (How)

Basic elements of sanitation and hygiene

- Good manufacturing practices (GMPs)
- Process Controls



Process Controls in Rendering

Process Controls are very formal ways to closely monitor, control, and record manufacturing processes that are defined as Critical Control Points (CCPs).



Process Controls in Rendering

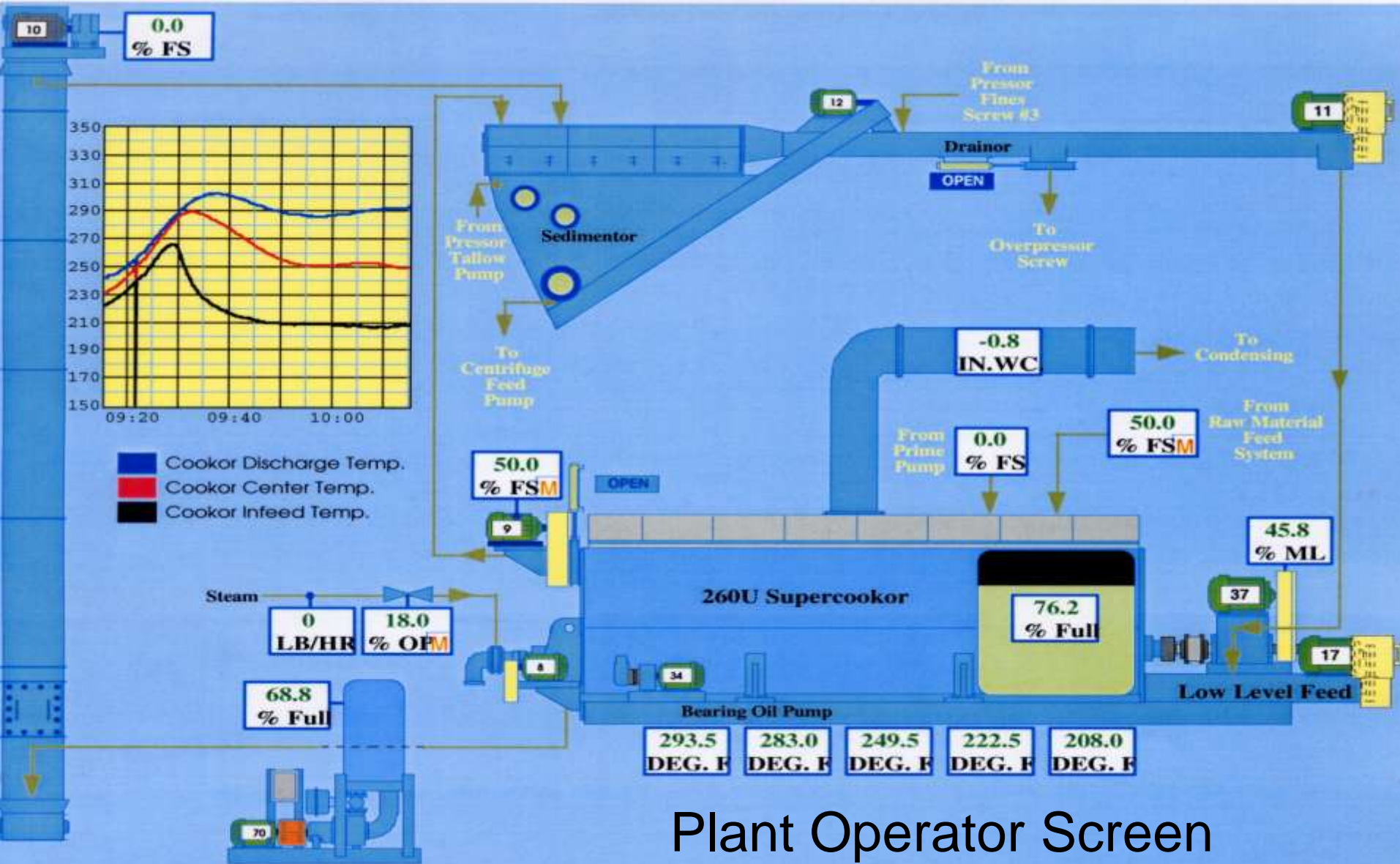
It is critical that sufficient temperatures are attained, so cooking would be a CCP in any rendering HACCP plan (Biological hazards).

Cooking temperatures should be closely monitored, controlled, and recorded.



Process Control

#1



Plant Operator Screen

Rendering Destroys Bacteria of Food Safety Concern

Bacteria	Raw Tissue	Post-Press
<i>Clostridium perfringens</i>	71.4%	0%
<i>Listeria species</i>	76.2%	0%
<i>L. Monocytogenes</i>	8.3%	0%
<i>Campylobacter species</i>	29.8%	0%
<i>C. Jejuni</i>	20.0%	0%
<i>Salmonella species</i>	84.5%	0%

U. Of Illinois, 2001. 17 rendering facilities sampled summer and winter. Percentage of samples having pathogens present.

Additional information in a
book available from the
National Renderers
Association

Free download:
nationalrenderers.org
under “Publications”

ESSENTIAL RENDERING

All About The Animal By-Products Industry



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<http://nationalrenderers.org/>

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