DESCRIPTION OF A CONTINUOUS RENDERING SYSTEM

Material to be rendered is received for temporary storage in Raw Material Bins (**1**). Raw material is conveyed from the bins by a Raw Material Conveyor (**2**) and discharged across a Magnet (**3**) to remove ferrous metal contaminants.

A Raw Material Grinder (**4**) then reduces the raw material to a uniform particle size for material handling and improved heat transfer in the cooking step.

The ground raw material is fed at a controlled rate from a Metering Bin (**5**) into a Continuous Cooker (**6**). The Continuous Cooker is an agitated vessel generally heated by boiler steam. It brings the raw material to a temperature between 250^{o}F and 280^{o}F, evaporating moisture and freeing fat from protein and bone.

A dehydrated slurry of fat and solids is discharged from the Continuous Cooker at a controlled rate. The discharged slurry is transported to a Drainer Conveyor (**7**). The Drainer Conveyor separates liquid fat from the solids, which are then conveyed from the Drainer Conveyor by a Discharge Conveyor (**8**). In the Discharge Conveyor, solids from the Drainer Conveyor are combined with the solids discharge from the Settling Tank (**10**) and from the decanter-type Centrifuge (**11**).

The solids from the Discharge Conveyor go to the Screw Presses (**9**), which reduce the solids' fat content to about 10 to 12 percent. Solids that bypass the Screw Presses are recycled back to the Cooker. Solids discharged from the Screw Presses in the form of Pressed Cake go to the Pressed Cake Conveyor for transport to further processing into meal. The fat removed in the Screw Presses goes to the Press Fat Conveyor (**12**), which separates large particles from the liquid fat and returns them to the Discharge Conveyor. The fat from the Press Fat Conveyor is pumped to the Settling Tank (**10**).

Fat discharged from the Drainer Conveyor (**7**) goes into the Settling Tank (**10**). In the Settling Tank the heavier bone and protein particles settle to the bottom, where they are discharged by screw conveyor into the Discharge Conveyor (**8**).

Liquid fat from the Settling Tank is pumped to the Centrifuge (**11**), which removes residual solid impurities from the fat. The solids from the Centrifuge go to the Discharge Conveyor (**8**). The clarified fat is transported to further processing or to storage as finished fat.

Water vapor exits the Continuous Cooker (**6**) through a vapor duct system that generally includes an entrainment trap to separate and return entrained particles to the Continuous Cooker. The vapor duct system transports the vapor stream to an Air Cooled Condenser (**13**), which condenses the water vapor. (Other forms of condensers, such as direct contact or indirect shell and tube units, may also be used.) Non-condensable gases are removed from the Condenser by a non-condensable fan.

Odorous gases generated at various points in the process are collected by a ductwork system and are transported along with the non-condensable gases from the Condenser to an Odor Control System (not shown) for neutralization of odorous components.