

Subject: Enquiry Specification - Dairy Plant extension for producing 1,500 Liters Set Yogurt per Day.

Preface: Balkh Live Stock Development Union (BLDU) in Afghanistan has set up a multi product Dairy Plant Processing around 5,000 Liters of Raw Milk per day. This plant was established in August year 2007 and currently processing around 4,000 Liters of milk per day producing,

- 1) Pasteurized & Homogenized Liquid Milk
- 2) Set Yogurt in smaller quantity
- 3) Batch Type Ice Cream Plant (under trial run)

Now to augment plant capacity and improving productivity, BLDU has plan to increase the capacity of Set Type Yogurt Production, for this purpose they are looking for a complete new yogurt making plant producing high quality Set Type Yogurt @ 1,500 Liters per day.

After considerable deliberation with the technical experts, following schematic have been finalized. Please Refer Attached Sketch # EC-DAD -001

- i) Raw milk to be received at the existing milk reception point in the plant and transferred to Dump Tank of new Skid Mounted Pasteurizer unit.
- ii) Flexible food grade plastic pipe and SS sanitary design pump to be used for this purpose.
- iii) This Dump tank also should have provision of fitting High Speed agitator for mixing Milk Powder (MP) which will be used either for preparing re constituted Milk or addition of Skim Milk Powder (SMP) for increasing SNF in Yogurt.
- iv) From the Dump Tank milk is taken in to 3 sections; In line type HTST pasteurizer unit.
- v) Plate Heat Exchanger (PHE) should have Heating, Cooling & Regeneration Section.
- vi) Raw Milk @ either 4 or 27 Deg C. to enter Regeneration Section & then to pass through heating Section. Outlet temp. of milk at heating section should be 95 Deg. C.
- vii) For heating section of PHE, hot water generator with adequate capacity to be provided.
- viii) Manually operated diversion valve to be provided for returning unpasteurized milk.
- ix) Hot pasteurized Milk from the diversion valve to be taken alternatively to two number 500 Liters capacity Dimple jacketed Holding / evaporative tanks, which should be heated by same hot water source as PHE mentioned above.
- x) Pasteurized milk @ 95 Deg C. should be held in these tanks before forwarding it to regeneration & Chilling section of the Pasteurizer PHE. Purpose of these holding tanks is to evaporate some quantity of water & improve on SNF of milk used for preparing yogurt. (Due to high cost and non availability of SMP in Afghanistan, We do not propose use of SMP to improve body texture of Set Yogurt)
- xi) After 15 min. holding, hot Milk @ 95 Deg C. to enter regeneration section of the PHE of the In Line Pasteurizer & then pass through cooling section to reduce temp. to 45 Deg C.
- xii) Approximate 500 Liters of pasteurized milk @ 45 Deg C. to fill in 40 Liters Milk cans for supply to city vending point where on arrival, It's to be inoculated with a yogurt starter.
- xiii) Remaining 1,000 Liters of milk to be taken in Two 300 Liters inoculation tanks
- xiv) These tanks after inoculation will supply inoculated milk in to two Cup Filler & Aluminum Foil sealer having capacity of appx. 900 cups per hour. So total 1800 Cups / Hr.
- xv) Each Cup is of 200 & 400 ML capacity so 300 Liter Capacity Inoculation tank will ensure that each batch filling time for tank will not exceed 1 hour and therefore cuddling of yogurt is avoided before packaging.