

# A Comparative Process Analysis Of Energy Balance For Conventional Batch Digester And Superbatch™ Digester

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## ABSTRACT

The comparative analyses of energy balance calculation over conventional batch digester and super batch digester was presented. The energy balance calculation for batch digester helps in understanding of the thermodynamics of a blow heat systems' avoids errors in calculating the amount of energy going to blow heat recovery system and prevents vapour release and energy loss to atmosphere. The comparative analyses of energy balance calculation shows for a batch digester of about a volume of 80 m<sup>3</sup> requires about  $4.27 \times 10^9$  joules/ton of pulp produced (without blow heat recovery) and superbach digester of about a volume of 200 m<sup>3</sup> requires only about  $1.9 \times 10^9$  joules/ton of pulp produced. Even when blow heat recovery calculation was used the superbach value is only about 70 to 80% the value of conventional batch digester. The energy balance calculation also provides the information about material balance for washers and evaporator, total dissolved solids produced per ton of pulp produced, % liquor solids, blow tank (discharge tank) pulp consistency etc, was presented.

Key words: energy balance, conventional batch digester, superbach digester.