

CASE STUDY OF HEAT TRANSFER PROCESSES IN FLAX AND HEMP MELTING TANKS USING GEOTHERMAL WATER

Liliana Indrie¹, Sabina Gherghel¹, Mariana Prichici² & Ioan Almășan³

1. University of Oradea, Faculty of Textiles and Leatherworks
2. University of Oradea, Faculty of Management and Technological Engineering
3. University of Oradea, Faculty of Energy Engineering

Corresponding author: Indrie Liliana, lindrie@uoradea.ro

Abstract: This paper presents aspects concerning the thermal calculation of heat exchangers. Two variants have been studied: one based on the use of only a surface heat exchanger and the other one based on mixing the secondary agent with the water contained in the tanks. This agent comes out into the tanks through the holes in the bottom grid pipes. In order to avoid problems caused by possible scale deposits which can appear in time, the solution of using an intermediate secondary agent between the geothermal water – the energy-supplying agent – and the melting water in the tanks was used. The case study helps the initiation of a complex study on the effects of the geothermal water chemism on the technical-crop melting process. The solution chosen for melting seems to be complicated by the existence of the secondary agent circuit but is necessary in case of a worsening effect of the fibre properties, caused by the geothermal water chemism.

Key words: technological processes, melting, flax and hemp, geothermal water, heat exchangers