Annals of the Academy of Romanian Scientists
Online Series on Physics and Chemistry Sciences
ISSN 2537 – 4761 Volume 2, Number 2/2017

THERMAL ANALYSIS OF HUMAN HAIR IN NON-ISOTHERMAL AND ISOTHERMAL CONDITIONS

Andreea MIHĂILĂ[1], Andreea GHERGHEL[1],
Oana Alexandra PĂTRĂUŢANU[1], Mirela AMARIEI[1], Gabriela LISA[2]

Abstract: *This paper presents the thermogravimetric analysis of four (European) human hair samples under non-isothermal and isothermal conditions, in air. The thermal stability of these samples was evaluated using the following criteria: T_{onset} - the initial temperature at which the thermal degradation starts and apparent activation energy for this stage. The European hair type was determined to have more thermal stability. Therefore, if T_{onset} the temperature at which their thermal decomposition starts was compared with that obtained by other researchers in similar conditions for three types of human hair (Caucasian, Oriental and African), values 30 up to 70℃ higher would be established. Thermal resistance tests run in isothermal conditions (230℃, for 1 minute) established that only the P1 sample (dyed coarse hair) showed percent mass loss bellow 1%. For this sample, the thermogravimetric data, as well as the kinetic data confirmed a better thermal stability.*

Keywords: thermal stability, human hair, dynamic and isothermal conditions.

[1]Students, "Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection "Cristofor Simionescu", Department of Chemical Engineering, 73 Prof.dr.doc D. Mangeron Street, Iasi 700050, Romania.
[2]Associate Professor, PhD, "Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection "Cristofor Simionescu", Department of Chemical Engineering, 73 Prof.dr.doc D. Mangeron Street, Iasi 700050, Romania (gapreot@yahoo.com, gapreot@ch.tuiasi.ro).