People`s Democratic Republic of Algeria, Ministry of Higher Education and Scientific Research
Ferhat Abbas University Setif 1, Faculty of Technology, Department of Basic Education in Technology

ICICT-2025

CERTIFICATE

OF PARTICIPATION

THIS CERTIFICATE IS AWERDED TO

Aimen M. B. Dhairi

For attending the **1st International Congress** on Innovations in Chemistry and Technology – **ICICT 2025**, held on November 18–19, 2025, at Ferhat Abbas University Setif 1, Faculty of Technology (Algeria).
With a **Poster** entitled

Influence of Artificial Ageing Conditions on the Microhardness of Aluminium Alloy

Co-authors: *Younes Benarioua*

Chairman of the Congress
Dr. Toukal LINDA

UNIVERSITY SETIF 1 Ferhat ABBAS
1st International Congress on Innovations in Chemistry and Technology
"ICICT 2025"
Faculty of Technology

Influence of artificial aging conditions on the microhardness of aluminium alloy

Aimen Bilal Dhairi 1, Younès Benarioua 1, 2

[1] D.G.M, Faculté de Technologies, Université de M'sila,- M'sila 28000, Algérie.

[2] URME, Université de Sétif 1-19000, Algérie

Abstract

This study examines the influence of tempering parameters (temperature and time) on the mechanical properties and microstructural characteristics of an extruded aluminium alloy. The alloy was tempered under varying conditions, and its hardness and tensile strength were measured to assess performance. Microstructural analysis was conducted using optical microscopy (OM) to evaluate grain structure and precipitate distribution. The results reveal that tempering temperature plays a critical role in modifying precipitation kinetics and dislocation density, directly affecting strength properties. An optimal tempering window was identified, balancing hardness and tensile response without compromising structural integrity. These findings contribute to the optimization of post-extrusion heat treatments for aluminium alloys in industrial applications.

Keywords: Aluminium alloy, tempering, extrusion, mechanical properties, microstructure, precipitation hardening