

Abstract: Biostability of Polymer Quenchants and their advantages in Heat Treatment production.

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English Abstract: The life of a polymer quenchant is an important variable in heat treatment. Extending its life allows to increase productivity. Biostable polymers resist organic contaminants and the growth of microorganisms.

Emulsions are susceptible to microorganisms because it contains water, nutrients and process temperatures below 40°C. The cooling curves are affected from their maximum cooling speed but also in areas close to Ms (below 300°C). The key to formulating biostable polymers is to identify or synthesize materials that bacteria and fungi cannot use for food or energy.

In the field we observed that a biostable polymer maintains the cooling curve for longer periods without a pronounced vapor phase and cooling speeds close to standard curves without increases in speed (°C/s) compared to conventional polymers, managing to extend the life of the polymer.

Resumen: Bioestabilidad en polímeros de temple y sus ventajas en la producción de tratamientos térmicos.

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Spanish Abstract: La vida de los polímeros es una variable importante en tratamientos térmicos. Extender su vida permite una mayor productividad. Los polímeros bioestables permiten resistir a contaminantes orgánicos y al crecimiento de microorganismos.

Las emulsiones son susceptibles a microorganismos porque contienen agua, nutrientes y temperaturas de proceso debajo de 40°C. Las curvas de enfriamiento se observan afectadas desde su velocidad máxima de enfriamiento y en zonas cercanas a Ms (debajo de los 300°C). La clave para formular los polímeros bioestables es identificar o sintetizar materiales que la bacteria y el hongo no puedan utilizar para alimento o energía.

En campo observamos que un polímero bioestable mantiene con más tiempo la curva de enfriamiento sin una fase vapor pronunciada, velocidades de enfriamiento cercanas a curvas patrón y sin aumentos de velocidad (°C/s) comparándolo con polímeros convencionales, logrando extender la vida del polímero.

Javier Rodríguez Arreguin, Quaker Houghton

I am a metallurgical engineer graduated from the Metallurgy and Materials program at the Instituto Politécnico Nacional in Mexico City. I hold an MBA in Business Management from the European Postgraduate Institute. Throughout my academic career, I specialized in Heat Treatment, focusing my thesis on the study of Nanostructured Bainite.

I worked at Gerdau as a Continuous Casting Machine Process Engineer in the Secondary Metallurgy area and as Refractory Assessor for a period of 4 years, from 2011 to 2015.

I joined Quaker Houghton in 2015 as an Account Manager for the steel segment in Mexico. In January 2022, I transitioned into the role of Business Development Manager, where I am responsible for promoting and selling Heat Treatment quenchants in Mexico.

In 2023 I was honored to be included in the 40 under 40 Class of the Heat Treat Today Magazine in 2023. As part of my responsibilities, I focus on providing ongoing training to individuals involved in various projects, particularly those without a metallurgical background about cooling curves, product maintenance, and basic topics related to the steel and aluminum heat treatment industry.