

## Kinetika transformasi fasa pemanasan tetap pada kasus penggetasan temper baja stainless zeron-25(SAF-2507)

Reza Fadhila, author

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### Abstrak

The kinetics of isothermal phase transformation in tempered embrittlement stainless steel zeron-25 (SAF-2507): The kinetics study of phase transformation in stainless steel SAF 2507 heat-treated at 800,850 and 900 oC have been done. Either observation of microstructure for treated materials by an optical or electron microscope confirmed the formation of carbide phase at grain boundaries between ferrite and austenite lead to three phase materials. It is further observed that for the three treated temperature there were no significant change in volume fraction of ferrite phase found and thus it may be assumed constant. However, this was not the case for two other phase in which volume fraction of carbide phase show an increase and followed by a decrease in volume fraction of austenite phase. It is then concluded that the carbide transformed from austenite. The number of volume fraction of carbide phase determined by XRD methods were ranged from 6.0% to 20% depends on time and temperature of treatments. An Avrami equation for kinetic study of phase transformation were successively used for construction of phase transformation curves from which some kinetic parameters of phase transformation were successfully derived, among them the average constant rate reaction (n) equals to about one, the activation energy below 850oC is 304 and for 850oC above is 307 kJ/mol. With kinetics constants above, the complete IT diagram for isothermal embrittlement of stainless steel SAF 2507 was successfully built theoretically.