

Rafael Coura Giacomini, Ph.D.

Associate | Materials & Corrosion Engineering
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Professional Profile

Rafael Coura Giacomini is a Materials Engineer who specializes in failure analysis, fractographic examination, laboratory and field analysis of a broad range of materials. Dr. Giacomini's extensive experience includes: ferrous metallurgy, materials characterization, pipeline metallurgy, corrosion analysis, process control, statistical analysis for improvement of processes and applications, failure analysis, prevention, and prediction of future defects. Dr. Giacomini provides technical support, litigation support and expert analyses to law firms, insurance companies and industry.

Professional achievements include procedure creation, training, process control, parameter optimization and quality assurance during the start-up of a one million ton steelmaking plant for Oil and Country Tubular Goods (OCTG) application; improving cleanliness and mechanical properties of steel; development of new grades for automotive applications and use of statistical analysis in root cause investigation of corrosion behavior of metal components.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, Carnegie Mellon University, 2019

M.S., Materials Science and Engineering, Carnegie Mellon University, 2017

B.S., Chemical Engineering, Federal University of Minas Gerais, Brazil, 2009

Prior Experience

Materials Engineer, Jensen Hughes, 2019-2020

Quality Engineer, VSB, 2009-2015

Professional Affiliations

American Society for Materials (ASM)

Association for Iron and Steel Technology (AIST)

Languages

Portuguese

Spanish

Publications

R C Giacomini, B A Webler; "Effect of Silicon on AHSS As-Cast Microstructure Development and Properties.", ISIJ International, Vol. 59, Issue 5, 2019, p. 858-864.

Conference Proceedings

R C Giacomini, B A Webler; "Effect of Allotriomorphic Ferrite Thickness on Advanced High-Strength Steel Toughness." The Iron and Steel Technology Conference and Exposition – AISTech 2019, Pittsburgh, PA, USA, 2019, p. 2259 – 2270.

R C Giacomini, B A Webler, H Yin; "A Study on Cracking Mechanism of Third Generation of Advanced High-Strength Steel Slabs." The Iron and Steel Technology Conference and Exposition – AISTech 2018, Philadelphia, PA, USA, 2018, p. 2625 – 2636.

S C L Poubel, L C A Germano, R C Giacomini, T Fujii; "Quality Analysis of the First Bar Cast in the VSB Steelmaking – Jeceaba." 48th Steelmaking, Casting and Non-Ferrous Metallurgy Seminar – ABM Week 2017, São Paulo, 2017, p. 653-661.

S Mosbah, T T Natarajan, P Komolwiti, B A Webler, R C Giacomini; "Experimental and Numerical Modeling of Solidification Grain Structure and Segregation in Ingot Casting Process." 9th European Continuous Casting Conference, Vienna, Austria, 2017.

R C Giacomini, J M Becerril, B A Webler; "As-Cast Microstructure Evolution in AHSS Grades and Its Effect on Slab Quality." International Symposium on New Developments in Advanced High-Strength Sheet Steels, Keystone, CO, USA, 2017, p. 209 – 221.

R C Giacomini, A F M Barreto, T Fujii, L Chesseret, T Braz; "Improving Steel Cleanliness Through Deoxidation Practice on EAF Tapping". The Iron and Steel Technology Conference and Exposition – AISTech 2014, Indianapolis, IN, USA, 2014, p. 1641 – 1646.

Presentations

R C Giacomini, B A Webler; "Effect of Allotriomorphic Ferrite Thickness on Advanced High-Strength Steel Toughness." The Iron and Steel Technology Conference and Exposition – AISTech 2019, Pittsburgh, PA, 2019.

R C Giacomini, B A Webler; "Mechanisms of 3rd Generation of Advanced High-Strength Steel Slab Embrittlement." ASM Pittsburgh Chapter Meeting, Pittsburgh, PA, 2019.

R C Giacomini, B A Webler; "Mechanisms of 3rd Generation of Advanced High-Strength Steel Slab Embrittlement." AIST Southeast Chapter Meeting, Portsmouth, VA, 2018.

R C Giacomini, B A Webler; "Mechanisms of 3rd Generation of Advanced High-Strength Steel Slab Embrittlement." AIST Philadelphia Chapter Meeting, York, PA, 2018.

R C Giacomini, B A Webler, H Yin; "A Study on Cracking Mechanism of Third Generation of Advanced High-Strength Steel Slabs." The Iron and Steel Technology Conference and Exposition – AISTech 2018, Philadelphia, PA, 2018.

R C Giacomini, J M Becerril, B A Weblar; "As-Cast Microstructure Evolution in AHSS Grades and Its Effect on Slab Quality." International Symposium on New Developments in Advanced High-Strength Sheet Steels, Keystone, CO, 2017.

R C Giacomini, A F M Barreto, T Fujii, L Chesseret, T Braz; "Improving Steel Cleanliness Through Deoxidation Practice on EAF Tapping". The Iron and Steel Technology Conference and Exposition – AISTech 2014, Indianapolis, IN, 2014.

Research Grants

Pennsylvania Infrastructure Technology Alliance, 2017-2018

Peer Reviewer

Metallurgical and Materials Transactions B