

**Biographical Sketch for Klaus-Markus Peters (Co-Principal Investigator)**

Fireline TCON, Inc., 418 Elk Street, Youngstown, OH 44505, 330-743-1164, [m.peters@firelineinc.biz](mailto:m.peters@firelineinc.biz)

**a. Professional Preparation**

<u>Institutions</u>	<u>Major/Area</u>	<u>Degree</u>	<u>Year</u>
Case Western Reserve University	Metallurgy and Materials Science	B.Sc.	1984

**b. Appointments**

<u>Position</u>	<u>Department</u>	<u>Institution</u>	<u>Dates</u>
General Manager		Fireline TCON, Inc.	2002 – present
Vice President of Technology, Technical Manager and Development Engineer		Pyromatics, Inc.	1991 – 2001
Engineer		Carboloy, Inc.	1988 – 1990
Research Engineer		Kennametal, Inc.	1984 – 1987

**c. Products:**

**i) Recent and significant:**

1. V. C. Solomon, K.M. Peters, B.P. Hetzel, and T.R. Wagner, “Characterization of Structure Evolution in Aged Al<sub>2</sub>O<sub>3</sub> /SiC Composite Refractories by Electron Microscopy”, Microscopy & Microanalysis 2010 Conference (2010). <http://dx.doi.org/10.1017/S1431927610060824>
2. K.M. Peters, R.M. Cravens, and J.G. Hemrick, “Advanced Ceramic Composites for Improved Thermal Management in Molten Aluminum Applications”, Energy Conservation in Metals Extraction and Materials Processing II Symposium Proceedings, TMS (2009). [www.dtic.mil/dtic/tr/fulltext/u2/a536213.pdf](http://www.dtic.mil/dtic/tr/fulltext/u2/a536213.pdf)
3. J.G. Hemrick, W.L. Headrick, and K.M. Peters, “Development and Application of Refractory Materials for Molten Aluminum Applications”, Int. J. Appl. Ceram. Technol., Vol. 5, No. 3, pp 265-277 (2008) <http://dx.doi.org/10.1111/j.1744-7402.2008.02213.x>
4. J. Xu, X. Liu, E. Barbero, J.G. Hemrick, and K.M. Peters, “Wetting and Reaction Characteristics of Al<sub>2</sub>O<sub>3</sub>/SiC Composite Refractories by Molten Aluminum and Aluminum Alloy”, Int. J. Appl. Ceram. Technol., Vol. 4, No. 6, (2007). <http://dx.doi.org/10.1111/j.1744-7402.2007.02177.x>
5. J.G. Hemrick, J. Xu, K.M. Peters, X. Liu, and E. Barbero, “Wetting and Reaction Characteristics of Al<sub>2</sub>O<sub>3</sub>/SiC Composite Refractories By Molten Aluminum and Aluminum Alloy”, Proceedings of the 31st International Conference on Advanced Ceramics and Composites, January (2007).

**ii) Other significant products:**

1. U.S. Patent 4,826,791; Pankaj K. Mehrotra, Klaus-Markus Peters, Joyce L. Swiokla; “Silicon carbide-alpha prime sialon beta prime sialon”. <http://www.google.com/patents/US4826791>
2. U.S. Patent 6,012,304; Ted A. Loxley, John F. Blackmer, Klaus-Markus Peters; “Sintered quartz glass products and methods for making same”. <http://www.google.com/patents/US6012304>
3. U.S. Patent 6,355,587; Ted A. Loxley, John F. Blackmer, Klaus-Markus Peters; “Quartz glass products and methods for making same” <http://www.google.com/patents/US6355587>
4. U.S. Patent 6,381,986; Ted A. Loxley, John F. Blackmer, Klaus-Markus Peters; “Sintered quartz glass products and methods for making same” <http://www.google.com/patents/US6381986>

5. U.S. Patent 7,111,476; Ted A. Loxley, John F. Blackmer, Klaus-Markus Peters; “Electrophoretic deposition process for making quartz glass products”.  
[www.google.com/patents/US7111476](http://www.google.com/patents/US7111476)

**d. Synergistic Activities**

1. Peters has over 20 years of experience in the field of materials science and engineering, primarily with ceramics. He is directly responsible for planning and carrying out R&D projects related to the processing of ceramic components and the utilization of these components in end user applications, has over 12 years of experience in managing R&D and engineering projects for ceramics manufacturers. He identified technology pull opportunities by working closely with end users and original equipment manufacturers, and technology push opportunities by leveraging and maximizing internal core competencies. He is a member of the American Ceramic Society, The Minerals, Metals & Materials Society, ASM International, the American Foundry Society, and the North American Die Casting Association.
2. Peters is General Manager of Fireline TCON, Inc., a wholly owned subsidiary of Fireline, Inc. It was formed in late 2002 to develop and commercialize the TCON transformation process, a unique method of producing ceramic-metallic composites with enhanced properties. Using this process, FTi produces and sells its unique refractory components under the TCON trademark. FTi takes advantage of Fireline’s expertise in producing ceramic components and utilizes Fireline’s experience in marketing and selling products to manufacturers who process molten metal. Fireline’s success is being used a template for FTi’s success. The success of commercializing TCON products will have a huge impact on both FTi and Fireline, and is expected to almost double Fireline’s annual revenues. In anticipation of future growth, Fireline has already purchased additional land next to its current facility.
3. As General Manager of Fireline TCON, Inc. Peters is responsible for managing the implementation and commercialization of the TCON process. He directly carries out internal R&D and engineering projects, coordinates all activities with outside research organizations, and directly works with customers to fulfill their application requirements.
4. At Pyromatics, Inc. (1991 – 2001) Peters coordinated all technical efforts relating to the research, development, design, manufacturing, and sales of fused quartz components utilized in semiconductor processing equipment. At Carboloy, Inc. (1988 – 1990) he carried out process engineering projects, internal product evaluations, and field testing on ceramic and cemented carbide metal-cutting tools, and at Kennametal, Inc. (1984 – 1987) he conducted research projects on wear and corrosion-resistant ceramics and cemented carbides.

**e. Collaborators & Other Affiliations**

- **Collaborators and Co-Editors:**  
Timothy R. Wagner, Hazel Marie, Virgil C. Solomon, Pedro Cortes, Darrel R. Wallace, Dingqiang Li, Matthias Zeller (Youngstown State University), James G. Hemrick, Peter. J. Blau, Ralph Dinwiddie (Oak Ridge National Laboratory), Lawrence C. Boyd (Energy Industries of Ohio)
- **Graduate Advisors and Postdoctoral Sponsors:**  
n/a
- **Thesis Advisor and Postgraduate-Scholar Sponsor:**  
n/a