



Köln, 14. Mai 2009



„Neue Materialien und Trends für den mobilen Innenausbau“

REFERENT

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VITA

Sein Studium und seine Promotion am Institut für Mineralogie, Kristallographie und Materialwissenschaften absolvierte Lars Leidolph in Leipzig. Herr Dr. Leidolph ist seit 2001 bei IBU-tec. Er ist als Bereichsleiter verantwortlich für die Abteilung Forschung & Entwicklung sowie dem Vertrieb von Advanced Materials.



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ABSTRACT

“A new generation of advanced Nano Metal Oxide Powders”

Dr. L. Leidolph and Dr. T. Khalil

IBU-tec's pulsation reactor technology is an innovative novel thermal process. This thermal reactor, a proprietary development of IBU-tec, which is based on pulsation burning, is the reactor of choice for material transformation processes in the chemical industry and for the production of nano-sized powders. The raw materials injected into the reactor receive thermal shock treatment with extremely short retention times. The thermal shock treatment creates a new generation of nano-particles which feature a highly reactive surface or of fine-grain materials such as nano-sized powders. Moreover, variations in temperature and retention times allow to specify features of the powders, e. g. specific surface morphology or particle size. This exclusive process at IBU-tec allows the production of materials with new and improved features.

Summaries of the applied technique (pulsation reactor) will be discussed. Different applications of pulsation reactor will also be described. Physico-chemical characteristics of some of the fabricated powders such as powder morphology, specific surface area, phase identification will be investigated and tabulated. The results show the possibilities of the production of nano metal oxide powders, such as Al_2O_3 , TiO_2 , ZnO and ZrO_2 as well as multi oxide powders as BaTiO_2 , Aluminiumsilicate (Mullit) and Magnesium Aluminate (Spinal) on industrial large scale applying pulsation reactor. Composite or core shell materials are possible too, which combine different properties, e.g. UV-protection and scratch resistance. The novel generation of nano materials leads to a better performance in different applications, which will be discussed.