

Wednesday 23rd February 2011
Manchester Conference Centre
Sackville Street Manchester M1 3BB

Characterisation of Nuclear Materials Seminar

Methods, Instrumentation, Applications



The world demand for electricity is projected to double by mid-century. Because of the ever-increasing price of fossil fuels and the associated environmental concerns such as carbon dioxide emissions, nuclear power generation is regaining popularity. Nuclear fuel is clean and relatively inexpensive compared to fossil fuels. In fact, it is the only source of clean, sustainable and affordable energy that can meet current and near-term demands for electricity generation – assuming sufficient numbers of reactors of current and advanced design can be brought on

line in a timely manner. The resurgence of nuclear power is so strong that it is referred to as the nuclear renaissance.

Of course, a prerequisite for the successful design of any new reactor or fuel system as well as modernisation of the existing reactor fleet is the accurate knowledge of the thermophysical properties of the materials of interest. This necessitates the measurement of thermophysical properties for fresh, reprocessed and used fuels as well as new and irradiated reactor components. Property measurements on fission products and their surrogates,

glasses, containment components and geological materials associated with long-term isolation in repositories are also of paramount importance. Some of the properties of interest are the thermal conductivity, thermal diffusivity, specific heat, transformation energetics, thermal expansion, bulk density, solidus/liquidus temperatures and O/M ratio. The methods and instrumentation required for measuring these properties will be presented and discussed in detail along with multiple examples which show the complete characterisation of fuels, surrogates, glasses, etc. during and post-processing.

Speakers

- Dr Juergen Blumm
*Managing Director,
NETZSCH-Gerätebau GmbH*
- Dr Jack Henderson
*Nuclear Applications Specialist,
NETZSCH Instruments, USA*
- Mr Peter Davies
*Area Manager,
NETZSCH Instruments, UK*

Programme

- | | |
|-------|--|
| 08:30 | Registration and Coffee |
| 09:00 | Welcome
<i>Dr Juergen Blumm</i> |
| 09:15 | Introduction to NETZSCH
<i>Peter Davies</i> |
| 10:00 | Theory of Thermophysical Properties with Emphasis on Nuclear Materials
<i>Dr Jack Henderson</i> |
| 11:00 | Break |
| 11:30 | Dilatometry, Simultaneous Thermogravimetric Analysis-Differential Scanning Calorimetry and Evolved Gas Analysis – Methods and Instrumentation
<i>Dr Juergen Blumm</i> |
| 12:45 | Lunch |
| 14:00 | Laser Flash Analysis and Differential Scanning Calorimetry – Methods and Instrumentation
<i>Dr Juergen Blumm</i> |
| 15:15 | Break |
| 15:45 | Instrumentation Modified for Glovebox and Hot Cell Operation
<i>Dr Jack Henderson</i> |
| 16:15 | Characterisation of Nuclear Fuels, Surrogates, Glasses, etc. during and post Processing
<i>Dr Jack Henderson</i> |
| 17:00 | Wrap-up discussion |

Registration Form



Yes, I would like to attend the seminar on the 23rd February 2011 at the Manchester Conference Centre

Unfortunately, I will not be able to attend, but I am interested in the following:

My contact information

(please type or print)

Name

County

Company/Institution

Phone

Address

Fax

Post Code/Town

Email

We look forward to welcoming you to our seminar
www.netzsch.com

For more information contact

Peter Davies (phone: 01902 306645, fax: 01902 725954,
email: peter.davies@netzsch.com)

Location

Manchester Conference Centre, Sackville Street,
Manchester, M1 3BB

Date

Wednesday 23rd February

Presented by

NETZSCH-Gerätebau GmbH

Note

There is no charge for this seminar which includes refreshments, lunch and electronic copy of lecture notes