CFRI NEWSLETTER

Vol. 2 | No. 4 | Quarterly Issue | October-December 2002

Established in November 1946, CFRI is a unique Institute of its kind in India under CSIR to conduct research in different areas of Fuel Science and Technology with emphasis on coal and lignite

Mission: Enhance the position of the Institute as a premier R&D centre for technology development and transfer by forging strategic alliance with other agencies and continuously strive for excellence in the area of potential expertise for generation of basic knowledge, innovation and advanced concepts in science and technology for economic, efficient and environmentally safe energy management

COAL CHARACTERIZATION TESTING AND ANALYSIS: A THRUST AREA

The systematic qualitywise assessment of coal/lignite reserves, being the major objective, about 25000 meterage of coal cores (January-December, 2002) obtained from the exploration programme of CMPDIL, MECL, GSI and other drilling organizations, both in virgin as well as working areas of thirty major coalfields of the country, were processed. About 41,000 band-by-band and overall coal/lignite samples were analyzed. The first information from characterization of these samples is essential for the first stage of mine planning/development itself. Techno-economic interpretation of data thus generated has helped in a big way in identifying suitable coking coals for blending to prepare coke for steel plants, providing linkages to the network of power stations and also specifying coal resources for their industrial uses like cement, industrial carbon, railways, coal combustion, gasification, hydrogenation, etc.

HIGHLIGHT OF COMPLETED PROJECT/CONSULTANCY WORK

The Influence of Rank and Maceral/Micro-lithotype and Physico-chemical Composition on Combustion of Pulverized Coal

(Sponsored by SSRC, Dept. of Coal, Min. of Energy, Govt of India, New Delhi)

Detailed petrographic studies were carried out on four raw coals and their density fractions along with the microscopic studies of the chars, obtained from different sampling ports of Drop Tube Furnace. Attempts have been made to correlate petrographic parameters and char morphology with the combustion behavior of the different coal samples.

Energy Audit of Govt Milk Scheme, Nasik

(Sponsored by Govt. of Maharashtra, Mumbai)

Energy audit of Govt Milk Scheme, Nagpur conducted by EMC, CFRI Unit, Nagpur resulted in saving of Rs. 25.0 lakhs per annum in their fuel bill. Various energy conservation measures in coal fired boilers, refrigerator systems, electrical motors, power plant, etc. were recommended for the purpose.

Energy audit of Mines & Plants of Manganese Ores (India) Ltd., Nagpur

(Sponsored by Manganese Ores (India) Limited, Nagpur)

CFRI Unit, Nagpur conducted energy audit of various activities of mining i.e. air compressor, pumps, winders, ventilator fans at EMD plant and ferromanganese plant of MOIL in Maharashtra and Madhya Pradesh and suggested energy conservation measures. Due to energy conservation measures, the envisaged financial saving will be to the tune of Rs. 50 lakhs.

Washability Test and Characterization of Various Coals of WCL

(Sponsored by NCSL, Nagpur)

Samples from fifteen mines of five areas of WCL
were collected. The screen analysis, washability and characterization tests were carried out and data were submitted to WCL Nagpur. Possibilities of reduction of ash ranging from 10 to 20% at specific gravity 1.5 and 1.7 with 70% to 80% of yield were observed.

Determination of Bulk Density of Dispatch Coals from Different SECL Sidings

(Sponsored by SECL, Bilaspur)

Bulk density is considered to be an important parameter for estimating the weight of stockpiles or a dispatch consignment. The data generated on steam, stack and recrushed ROM coals, are expected to benefit both the producers and consumer in making an initial assessment of their quality at the time of loading/stockpiling subject to actual weighing at the time of dispatch.

TECHNOLOGY TRANSFER

* An agreement was signed between CFRI and M/s. Black Diamond Coal Briquette and Industry, Kulti, Burdwan on 28 November 2002 for transfer of process know-how for Smokeless Briquetted Fuel.

* Between CFRI and M/s. Hindustan Sizing Coal Centre Jamtara, an agreement was signed on 18 November 2002 for transfer of technology for Soft Coke production.

* An agreement was signed between CFRI and M/s. Maa Durga Fuel Coke, Burdwan on 22 November 2002 for transfer of Soft Coke Technology.

STRATEGIC ALLIANCE

CFRI has made a strategic alliance with M/s. Aar Ess Exim, Paschim Vihar, Delhi on 1 October 2002 for execution of projects related to production of metallurgical/industrial grade coke, injectable coal for steel melt shop, briquetted fuel for domestic use, coal devolatilization and related areas in India and abroad.

INVITED LECTURE

Dr Kalyan Sen, Director, CFRI delivered a Key Note Address on "Energy: Conventional and Non-conventional Sources" on 22 December 2002 in "CHEMCON" Indian Chemical Engineering Congress-2002 at Hyderabad.

LECTURES

* Shri Jagannath Das, Chemist, Research Centre, Indian Petrochemical Corporation Ltd, Baroda, delivered a lecture on 13 November 2002 on "Development of Zeolite Based Catalyst and Process for Para-di-substituted Aromatics".

* Shri K. Basu, Ex-GM, BHEL, Hyderabad delivered a lecture on 20 November 2002 on "An Overview of Coal-Based Power Generation".

* Shri P. D. Hirani, Sr. Manager (R&D), NTPC, Noida, UP delivered a lecture on 12 December 2002 on "New Generation Fuel for Power Fuel Cell, Dimethyle Ether, Washed Coal Initiatives by NTPC
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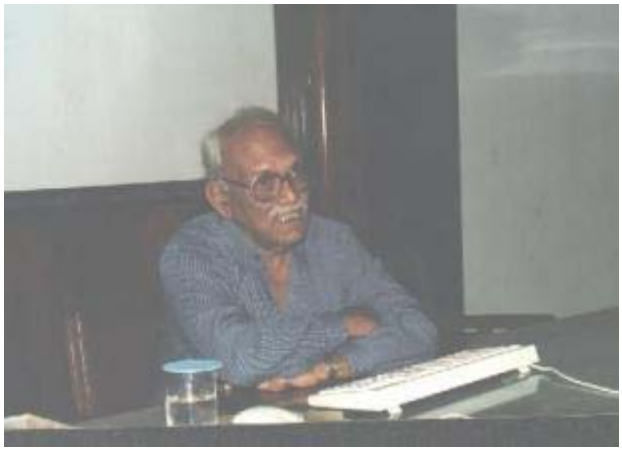

Sri K. Basu, Ex-GM, BHEL, Hyderabad delivering the lecture on 20.11.02

PAPER PUBLISHED

* Tiwari, K. K, Jaiv Indhan Ethanol: Khanij Tel Ka Aek Pramukh Vikalp (Hindi), Bhartiya Vaiganik Avum Audhogik Anusandhan Patrika, 10 (2002) 1, 47-50.

* Alam Noor, Paul, S. K. and Bagchi, D., Rapid Method of Proximate Analysis of Coals from Indian Coalfields, Minetech, 22, (2001) 3, 35-39.

TRAINING FOR NTPC CHEMISTS

A training course on "Coal Quality and Analytical Methods for Coal Characterization" is being organised for Assistant Chemists of NTPC. They are being trained in three batches. First batch from 2 to 13 December 2002 and second batch from 16 to 27 December 2002 have completed the training. Third batch will start from 2nd February. 2003 and will end on 14 February. 2003. This training course covers theoretical class and practical training.

Inaugural function of training programme for NTPC chemists

NAGPUR UNIT

CFRI Nagpur Unit performed assessment of borehole coal cores received from drilling organizations viz. CMPDIL, GSI, DGMS (MS). The details of activities are as under:

* Meterage processed 366
* Metarage analysed 990
* No. of samples prepared band by band 1789
* No. of samples prepared overall 83
* No. of samples analyzed band by band and over all 2061

TESTING AND EVALUATION

Total 453 numbers of different types of samples such as coal-431, coke-8, ash-9, coal tar-1, transformer oil-3, turbine oil-3 were analyzed and the results were supplied to the concerned parties. The parties include Castron Technology, Dhanbad; Aparant Iron Steel Pvt. Ltd, Panjim, Goa; SESA Kembla Coke Co. Ltd, Panjim, Goa, etc.

WORKSHOP ON HINDI LANGUAGE

An Administrative Hindi workshop was organized during 8-9 October 2002 for the scientific and administrative staff. Shri Sita Ram Sharma ,Sr. Hindi Officer, DGMS, Dhanbad; Shri Shrinath Singh, Sr. Hindi Officer, BCCL, Dhanbad; Shri G. K. Prasad, Hindi Officer, Shri Shailabh, Scientist, both from CFRI, Dhanbad delivered their lectures covering a wide range of topics such as communication in Hindi, official language acts, administrative terminology, expression of scientific matter in Hindi and problems thereof and constitutional background of Hindi as an official language.

CD ON CSIR DIAMOND JUBILEE

A CD brought out on the occasion of Diamond Jubilee Celebration of CSIR Foundation Day, 26th September 2002, containing excellence of research of CSIR laboratories, was shown to the staff members on 8 November 2002.

CFRI IN MEDIA

* Fly ash: Hazard that could become a boon (Hindustan Times, 23.10.02)

* Training for NTPC Chemists (Aaj 05.12.02)

* Training for NTPC executives concludes (Prabhat Khabar 14.12.02; Hindustan Times 15.12.02; Hindustan 15.12.02)

* CFRI earned Rs 1043 Lakhs and filed 18 Patents (Prabhat Khabar 20.12.02)

* Pollution related diseases on high rate in coal belt : Dr Naik (Hindustan 24.12.02)

WORLD AROUND

AUTOMOTIVE BIOMASS FUEL TO BE SOLD NATIONWIDE

Wilco International Agency has announced that it has decided on its product name and sales station name for automotive biomass fuel as "EI Nino" and "Eco-Renaissance Station" respectively. The company will start sales in Japan in November via its national network of 50 stations. The selling price will be around the same as that of regular gasoline at approximately ¥ 90 (75 cts) per liter.

EI Nino is an alcohol-based fuel made from corn and sugarcane. It is produced by subjecting the plant-derived alcohol, butane and petroleum components to complex fermentation using a proprietary biocatalyst. The resultant new fuel is suited to gasoline internal combustion engines.

Complex fermentation helps prevent corrosion and deterioration of aluminum and pipes, which are the problems with existing alcohol-based fuels.

Since the fuel is derived from plants, it serves the purpose to reduce CO2 emissions in exhaust gases and achieve lower fuel costs. Its octane value being 98, nearly equivalent to high-octane gasoline, is expected to bring a wide range of economic benefits.

Production calls for cultivating the feedstock plants in a desertified zone in China. This is followed by converting the stems, leaves and other residual matter into butanol and ethanol and producing the biomass fuel there through a local firm in Beijing. The product, before being transported to Japan, is to be stored in tanks at Tianjin.
(Source: Chemical Industry News, Nov. 2002)

GAS FIND FIRES ENERGY MARKET

The huge gas reserve found in the Krishna-Godavari basin off the Vishakhapatnam coast by a consortium of Relaince Industries and Canadian firm Niko Resources, is set to change the energy map of India by sending promoters of future oil and power projects back to their drawings boards.

US-based oil consultancy firm McNaughten has certified that the reserve has the potential to supply between 40 and 55 mmscmd (million metric standard cubic meters) gas per day. The reserve have been estimated at 7 trillion cubic meters, which is near to state owned ONGC's Vasi gas find of 9 trillion cubic meters.

The Reliance consortium expects to open the taps within two-and-a half years. It has drilled four wells at depths of 4,000-6,000 ft.

Petroleum secretary B K Chaturvedi said the current nation-wide gas demand for which allocations have been made, stands at 118 mmscmd. Against this, only 65 mmscmd of gas is available. "With demand expected to grow four times by 2025, the find will go a long way in bridging the gap," he said.
(Source: The Times of India, Delhi, 1 Nov. 2002)

VISITORS TO CFRI

· Mr. George M. Silbey, Counsel General of USA; Mr. Mathew Boyse, Ms. Jenifer Joyce and Mr. Saurabh Sen of Kolkata visited on 8.10.02.

* Shri R. K. Mathur, Sr. Manager, NTPC, Noida, UP visited on 14.11.02

* Dr. K. S. Narasimhan, Ex-Director, CFRI visited on 3.12.02

* Shri R. Santhanam, General Manager (E&C), Indian Metals and Ferro Alloys Ltd. & Indian Charge

Chrome Ltd., Bhubaneshwar, Orissa visited on 9.12.02

* Dr. T. K. Ghosh, Dy. Chief Engineer (Chem), Dankuni Coal Complex (South Eastern Coalfields Limited), CIL, Hooghly visited on 19.12.02

NEW ARRIVALS IN CFRI LIBRARY

12 Books, 15 Geological maps and 10 Research papers form different journals in xerox form have been received. Some of the important books are as under:

* Advanced Organic Chemistry: Part A: Structure and Mechanisms, Francis A. Carey and Richard J. Sundberg, Kluwar Academic, New York, 2000

* Quality Control and Management: Method and Practices in Mineral Chemistry, J. Bhattacharya, Allied Publishers Ltd., Kolkata, 2001

* TERI Energy Data Directory and Yearbook 2001/02, Tata Energy Research Institute (TERI), New Delhi, 2002

PATENT INFORMATION-COAL AND ITS UTILIZATION

US: 6,461,424; October 8, 2002
Title: Electrically conductive concrete and controlled low-strength materials.
Inventors: Ramme, Bruce W. (Okauchee, WI); Noegel, John J. (West Bend, WI); Setchell, Jr., Richard H. (Brookfield, WI); Bischke; Robert F. (Waukesha, WI).
Abstract: This invention relates to concrete and controlled low-strength materials having improved characteristics, reduced limestone content and electrical conductivity such that when used in construction, the material is capable of conducting electrical charges such as those resulting from a lightning strike. Further, the concrete and controlled low-strength materials comprise a high carbon content fly ash, thus providing a means for utilization of a product usually considered a by-
product, or a waste product, of coal burning power generation.

* US: 6,475,386; November 5, 2002
Title: Filter for purifying domestic drinking water.
Inventors: Carr; Charles Joseph (Coraopolis, PA); Farmer; Richard William (Gibsonia, PA)
Abstract: This invention describes an improved filter for lowering levels of contaminants in domestic drinking water.

* US: 6,489,371; December 3, 2002
Title: Fischer-Tropsch processes and catalysts with promoters.
Inventors: Chao; Wenchun (State College, PA); Makar; Kamel M. (Wilmington, DE); Manzer; Leo E. (Wilmington, DE); Subramanian; Munirpallam A. (Kennett Sq., PA)
Abstract: This invention relates to a process for the preparation of hydrocarbons from synthesis gas, (i.e., a mixture of carbon monoxide and hydrogen), typically labeled the Fischer-Tropsch process.

* US: 6,490,527; December 3, 2002
Title: Method for characterization of rock strata in drilling operations.
Inventors: Utt; Walter K. (Spokane, WA)
Abstract: This invention relates to methods of characterization of rock strata in underground mining operations.
(Source: www.uspto.gov)

EVENTS AHEAD

* Republic Day Celebration on 26 January 2003
* National Science Day on 28 February 2003

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