



CFRI NEWSLETTER



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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

DROP TUBE FURNACE INSTALLED

Drop Tube Furnace (DTF) is a bench scale unit for studying the combustion behavior of coal. It is a useful research tool for getting a better insight into the burning characteristics of coals and their dependence on quality parameters.

DTF of capacity 1-3 kg/hr has been installed in CFRI. Pulverized coal (-200 mesh) is fed through a vibrating feeder from top of the furnace. DTF is having five zones. Each zone can be heated upto 1000°C. The flow of coal-air mixture is kept sufficiently low to ensure laminar flow conditions. The residence time of the feed inside the furnace and the oxygen content in the temperature zone can be altered to suit the requirements for burning of different types of coals. Char and combustion gases are collected at different heights of the furnace through water cool probe. The steady state of combustion is verified by online oxygen and carbon monoxide analyzer in the flue gas line and combustion rate is measured through unburnt carbon particles. Combustion behavior of different gravity fractions of coal in this set-up may help assess the level of coal beneficiation.

NEW PROJECTS RECEIVED

- Monitoring of Battery of Ovens for Soft Coke
(Sponsored by Super Fuels, Hazaribagh).

- Evaluation of Combustion Behavior of Coal at Different Ash Levels for Pulverized Coal (Sponsored by Ministry of Coal, Govt of India).
- Design and Manufacture of Jig, Capacity 20 tph (Sponsored by BLG Minerals Pvt. Ltd., Dhanbad).
- Mitigation of Green House Gas via *In-situ* Infusion of Fly Ash with CO₂ in Thermal Power Plants vis-à-vis Associated Carbon Sequestration and Adoption (Sponsored by Ministry of Environment & Forest).
- Erection and Commissioning of Coal Devolatilizer (Soft Coke) to be set up as per CFRI Technology in Nigeria (Sponsored by Promac Engg. Industries Ltd., Anjanapura, Bangalore).

PATENT FILED BY CFRI

"A Process for the Manufacture of Active Carbon from Coke Breeze Useful for Removal of Toxicants from Effluent Water of Coke Plants" by S. N. Majumdar, J. Singh, S. K. Basu, P. Bhattacharya and K. Sen (India).

Abstract: This invention relates to manufacture of highly porous and relatively denser active carbon from cheaper and abundantly available

material like coke breeze from coke oven plants and finds its usage in removing toxicants from effluent water from coke oven plants. In this invention, pollution hazard is controlled appreciably unlike other conventional raw materials and impregnation methods.

PATENT INFORMATION: COAL AND ITS UTILIZATION

- US Patent No: 4818374, Process for Converting Coal to an Oil Fraction
Inventors: Hirokoh, N. et al.
Abstract: A process for converting coal to an oil fraction has been developed.
- US Patent No: 4943367, Process for the Production of High Purity Coke from Coal
Inventors: Nixon, J. C. et al.
Abstract: High purity coke particularly suited to the production of anodes for aluminium smelting is produced by an integrated process.
- US Patent No: 5830246, Process for Processing Coal
Inventors: Dunlop, Donald D. (Miami, FL)
Assignee: Fuels Management Inc. (Miami, FL)
Abstract: This invention describes a process for preparing an irreversibly dried coal.
- US Patent No: 5130013, Process for Producing a Liquefied Coal Oil and a Catalyst for the Process
Inventors: Kageyama, Y. et al.
Abstract: A process for producing liquefied coal oil by a two-step hydrogenation reaction of coal has been described.

Source: www.uspto.gov

MoU SIGNED

A MoU was signed on 27.05.02 between CFRI, Dhanbad and M/s. BLG Minerals Pvt. Ltd, 8 Waterloo Street, Kolkata-700069 for joint development of coal washing jig under the brand name "CFRI-BLG Flexi-jig".

HIGHLIGHTS OF COMPLETED PROJECT Erection, Commissioning and Trial Run of Briquetting Plant (*Sponsored by Gujrat Heavy Chemicals Ltd., Veraval, Gujrat*).

Consultancy work pertaining to the erection, commissioning and trial run of briquetting plant of GHCL was completed. The main activity of CFRI was to make plant layout and detail engineering drawing for a 25 tonnes per day briquetted fuel plant. The work also included supervision of 20 metres long curing chamber utilizing waste flue gas of boiler. Six trial runs were conducted during 27th May to 4th June, 2002. The engineers and other staff were also trained for the smooth operation of the plant. The commissioning was successfully completed on 4th June, 2002. The samples of briquetted fuel were collected for analysis at CFRI and the final report is under preparation.

The commercial production from the plant has enabled the firm to reduce the consumption of imported coke by about 15% as the same has been substituted with the briquetted fuel.

PAPER PRESENTED

Miss V. Angu Selvi presented a paper entitled "Besidiomycetes and its Enzyme as New Biotechnological Tools for the Waste Water Management", authored by V. Selvi, G. Singh and R. Banerjee at 'All India Convention on Cost Effective Biotechnology in Modern Waste Water Management', NCTD, Mumbai during 31 May to 1 June, 2002.

NRDC TECHNOLOGY AWARD-2002 TO CFRI SCIENTISTS

Dr. S. K. Hazra and Shri Partha Sengupta have been jointly conferred with NRDC Technology Award 2002 for their invention on "Low Cost Environment Friendly and Energy Efficient Device for Production of Soft Coke". National Research Development Corporation (NRDC) confers this award on the eve of technology day (11th May every year) for successful commercialization of indigenous technology.

The award was presented by Shri K. C. Pant, Dy. Chairman, Planning Commission at New Delhi.



Dr. S.K.Hazra and Sri P.Sengupta both Scientist CFRI receiving NRDC Technology Award from Sri K.C.Pant, Dy.Chairman, Planning Commission on 11 May, 2002 at New Delhi. Also seen Sri Bachhi Singh Rawat, Union State Minister for Science & Technology and Dr. R.A.Mashalkar, DG, CSIR.

Soft coke, the common men's fuel for cooking, has a demand of about 30 million tons per year with its present production of about 5-6 million tonnes per annum in the country. The technology developed by CFRI is of low capital investment and can be set up both in rural and semi-urban areas. Besides, one 50 tpd capacity plant can generate direct employment opportunities for at least 14 persons and indirect employment for 18 persons.

So far 64 units have been commissioned in different parts of the country. Earlier the investigators of this technology were also awarded CSIR Technology Award in 2000.

INVITED LECTURES

- Dr. Kalyan Sen delivered an invited talk on "Modern Technology a Need of Hour" at Bengal Engineering College, Shibpur, Howrah in 'Technology Festival' on 15.05.2002.
- Dr. P. Samuel delivered a lecture on "Some New Concepts on Catalysis for Syn-Fuels" at NCL, Pune during 26-27 June, 2002 in a programme 'Catalysis: Concepts to Practice'.

CFRI FOUNDATION DAY

Shri S. V. Chaoji, Chairman-cum-Managing Director, Western Coalfields Ltd., Nagpur delivered "CFRI Foundation Day Lecture" on 19th April, 2002 at CFRI Unit, Nagpur on the subject "Coal Mining and its Associated Problems". On this occasion, he also inaugurated a new building equipped with sophisticated instruments and computer facilities for the Nagpur Unit.

HINDI WORKSHOP

A Hindi Workshop was organized on 23 April, 2002 for using Hindi language with renewed vigour and enthusiasm in day to day work of the office. Dr Kalyan Sen, Director, CFRI

inaugurated the Workshop with his brief address to the participants, organizers and instructors. Dr Ajay Kumar Singh, Scientist and Shri Puran Kishore Singh, Hindi Adhikari, CMRI, Dhanbad and Shri G. K. Prasad, Hindi Adhikari, CFRI were the pedagogues for this workshop. In the workshop, various aspects such as scientific writing in Hindi, Hindi spelling of scientific and technical words and dictionary of definitions were discussed extensively where most of the administrative staff and scientists of the Institute participated actively and took keen interest.

NATIONAL TECHNOLOGY DAY

Dr. S. K. Choudhury, Chief Scientific Officer (IPR & IR), Indian Institute of Technology, Kharagpur delivered Technology Day Lecture on "Technology Management: Some Important Aspects" on 11th May, 2002. On this occasion, three presentations by the scientists of CFRI were also made, in which Dr. K. N. Bhattacharya presented on "Coal Water Emulsion"; Dr. L. C. Ram presented on "Environmental Aspects of Solid Waste Management in Thermal Power Stations and Coal Mining Industries" and Shri S. Biswas presented on "Impact of Coal Quality on PF Combustion".

TECHNO-FEST

One day Seminar on "Integrated Rain Water Management-cum-Mosquito Control" was organized on 24th May, 2002. Shri Samaresh Singh, Hon'ble Minister for S & T and IT, Govt of Jharkhand inaugurated the function. The Chief Guest, Prof. Ashish Kumar Moitra, Director, Institute of Planning and Architecture, New Delhi, delivered his lecture on "Landscaping". Shri Vinod Kispota, IAS, Dy Commissioner, Dhanbad; Shri R.S. Singh, GM, TISCO Collieries, Dhanbad; Shri V. S.

Gaur, DFO, Dhanbad; Prof. B. B. Bhattacharya, Director, ISM, Dhanbad; Prof. (Mrs) R. Banerjee, IIT, Kharagpur; Shri B.N. Pan, CMD, BCCL, Dhanbad also graced the occasion and delivered their talks. Dr. A. K. Singh, Scientist, CFRI presented a paper.

NEW ARRIVALS IN CFRI LIBRARY

A new CD ROM on International Ash Utilization Symposium-2001 jointly organized by UK Centre for Applied Energy Research and US Department of Energy, Federal Energy Technology Centre at Hyatt Regency, Lexington, Kentucky, 22-24 October, 2001 has been received and added to the range of library holdings.

CFRI IN MEDIA

- ❑ New infrastructural facility to be opened today at CFRI Unit, Nagpur (*Hindustan Times (Nagpur live), 19 April, 2002*).
- ❑ Research essential for problems linked with coal mining: Chaoji (*Lokmat Samachar, 20 April, 2002*).
- ❑ CFRI's new premises equipped with new infrastructural facility inaugurated (*Lokmat Times, 20 April, 2002*).
- ❑ To strengthen coal industry continuous research is utmost important: Chaoji (*Hindustan, 26 April, 2002*).
- ❑ 56th CFRI foundation day celebrated (*Prabhat Khabar, 26 April, 2002; Awaz, 27 April, 2002*).
- ❑ Status of coal based industry unsatisfactory (*Dainik Jagaran, 27.04.02*).
- ❑ Technology day organized at CFRI (*Dainik Jagara, Bihar Observer, Hindustan Times and Telegraph, 12.05.02*).
- ❑ Changes in technology according to society and need are imperative: Dr. Choudhury (*Hindustan, 12.05.02*).

- ❑ Celebration of National Technology Day at CFRI: Technology changes according to society and need -Dr Choudhury (*Awaz, 12 May, 2002*).

- ❑ Under changed circumstances: technology also changing: Dr Choudhury (*Chamakta Aina, 13 May, 2002*).

WORLD AROUND

Indian Scientist wins Award

Dr Karve of Appropriate Rural Technology Institute (ARTI), India bags the world's only award (1st Prize, £30,000) for renewable energy for discovering and implementing a unique technology that produces clean fuel from sugarcane waste in India. The second prize (£15,000) goes to Dale Lewis of Wild Life Conservation Society, Zambia for his innovative use of solar powered electrical fencing useful in protecting agricultural fields from wild animals.

Source: 44BCN May/June 2002

EVENTS AHEAD IN CFRI

- ❑ Independence Day on 15th August, 2002
- ❑ CSIR foundation Day on 26th September, 2002, Diamond Jubilee Celebration
- ❑ Hindi Pakhwara from 2 to 16 September, 2002

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