

Brief Bio-data

1. Name: Dr J K Pandey
2. Date of Birth: 05.09.1965
3. Current Position and Address (Include Email ID and Contact Number)
Chief Scientist & Head
Mine Fire, Ventilation and Miner's Health Research Group
Room No. TG-8, Technological Block
CSIR- Central Institute of Mining and Fuel Research, Dhanbad-826015 (Jharkhand)
Email: jkpandey@cimfr.nic.in contact no. 0326-2396053 , +91 9431727134 (M)
4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/Institute	Subject
1	B.Tech.	1988	IIT(BHU), Varanasi	Mining Engg.
2	M.Tech.	1990	IIT(BHU), Varanasi	Mining Engg.
3	Ph.D.	2007	IIT(ISM), Dhanbad	Mining Engg.

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Jr Scientist	CSIR-CIMFR, Dhanbad	30/11/1989	29/11/1994	R&D work
Scientist	CSIR-CIMFR, Dhanbad	30/11/1994	29/11/1999	
Sr. Scientist	CSIR-CIMFR, Dhanbad	30/11/1999	29/11/2004	
Principal Scientist	CSIR-CIMFR, Dhanbad	30/11/2004	29/11/2009	
Sr. Principal Scientist	CSIR-CIMFR, Dhanbad	30/11/2009	29/11/2015	
Chief Scientist	CSIR-CIMFR, Dhanbad	30/11/2015	Till date	

6. Work Area(s)/ Specialization: Mine Environment, Mine Ventilation, Mine Fire, Miner's Safety and Health

7. Major contributions: (Max. 100 words):

Pioneered the laboratory set up and performance evaluation of various safety and rescue equipments used in mines. Provided solution for (a) all type of ventilation problems including those using simulation planning and (b) air borne respirable dust(ARD) – assessment and control for large number mines including determination of free silica in ARD. Diversified the ventilation expertise to address the air circulation problems of cave structures, tunnels and other important historical/religious monument. Surface and underground coal mine fire, its assessment and control for a number of fire affected coal mines including fire proneness of a coal seam and ventilation design of fiery mines.

8. No. of Research Publications:

- Papers in Journals: 45

- In conference proceedings: 70
- Invited lectures delivered: 5
- List of best 05 publications

1. Panigrahi D.C., **Pandey J.K.** and Udaybhanu G, 2005, "Pattern Of Hexa-Valent Chromium In Air-Borne Respirable Dust Generated At Various Work Places In Opencast Chromite Mines" Environment Monitoring and Assessment, Springer Science, The Netherlands, Vol 114, March 2006, pp 211-223. **(Springer, IF: 1.70)**
2. Shobha Kumari, Gouri Charan Thonangi, **Jai Krishna Pandey**, G. Udaybhanu, Sadanand Sharma, "Evaluation of Quartz reduction by coal cleaning for thermal utilization of an Indian coal" *International Journal of Coal Preparation and Utilisation*, (Taylor & Francis) DOI: 10.1080/19392699.2016.1189418, available online 1 June 2016. **(Taylor & Francis, IF 2.034)**
3. **Pandey Jai Krishna** , Agarwal, Gorain sanjoy, Dubey Rajnish Kumar, Vishwakarma manoj Kumar, Mishra kamlesh Kumar and Pal Ashim Kumar, " Characterisation of respirable dust exposure of different category of worker in Jharia Coalfields, Arb J Geosci, (springer) DOI 10.1007/s12517-017-2974-4 Published online 8 April 2017. **(Springer , IF 1.3)**
4. S. K. Ray, N. K. Mohalik, A. M. Khan, D Mishra, N K Varma, **J K Pandey**, P K Singh,"CFD modeling to study the effect of particle size on dispersion in 20l explosion chamber: An overview", *International Journal of Mining Science and Technology*, <https://doi.org/10.1016/j.ijmst.2020.04.005>, Published on 24.04.2020 **(Elsevier, IF: 3.903)**
5. Rakesh Kumar Mishra,, **Jai Krishna Pandey**, Jitendra Pandey, Sumit Kumar, Paresh NathSingha Roy, Detection and Analysis of Coal Fire in Jharia Coalfield (JCF) Using Landsat Remote Sensing Data, *Journal of the Indian Society of Remote Sensing*, <https://doi.org/10.1007/s12524-019-01067-6>, published online Nov 2019 **(Springer, IF 1.102)**

- Books/Chapters authored/edited: 2

9. List of 5 Major Contract R&D Projects:

- Studies on Determination of Free Silica (α -Quartz) Content in Respirable Air Borne Dust in Coal Mines and Preparation of Data Bank of Free Silica and other Minerals present in Dust as well as in Coal
- Ventilation and Fire safety Design of three tunnels at Panvel-Karjat Double line suburban Corridor of Mumbai Rail Vikas Corporation Ltd Mumbai.
- Scientific Investigation and Advice for improvement in Ventilation of Mochia and Balaria Mines of Zavar Group of mines, HZL
- Study and Advise on Air Circulation and other comfort/safety issues at Lord Jagannath Temple, Puri Orissa
- Advice on heating and formulation of explosive mixture in R-V seam of Kunustoria colliery and establishing recently protocol of the same

10. (a) Name of Patents/Copyrights applied /granted/commercialized:

- (i) **“An Improved Design of Sand Stowing Bunker for Hydraulic Stowing of Pond Ash in Coal Mines”** Patent No. 267936, Date of Grant 07/08/2015.
- (ii) **“Biodegradable and Eco-friendly dust suppressant chemical for unpaved haul road and stock pile, blasted material handling in mines and other dust prone area”**, Patent No. 313204, date of grant 27/05/2019.
- (iii) **“A computer program(Smart quartz) for quick measurement of quartz in respirable airborne dust using FT-IR Spectroscopy”**, Copy right No-007CR2013 Dated: 04/02/2013
- (iv) **FIRE-INDICATOR (004CR2021)**:- FIRE INDICATOR- An android and desktop application to determine status of mine fire in underground coal mines.
- (v) **MINE – EXPLO (005CR2021)**: An android and desktop application to determine status of sealed off areas with respect to explosion.
- (vi) **CIMFR-PSYCHRO (006CR2021)**: An android and desktop application for calculation of psychrometric properties of mine air of underground mines.

(b) Technologies/Products /knowhow/Services developed :

Developed a dust suppression solution for haul roads and other working places in the mines through industrial collaboration with M/s Syntron Industry, Ahmadabad. This has led to Biodegradable and Eco - friendly dust suppressant product-cum-technology **Dustron PC Coal and Dustron PC Compound** for unpaved haul roads and stock pile, blasted material handling in mines and other dust prone areas. The technology has been patented and is being successfully marketed for the last ten years in South Africa, Australia, Newzeland, Greece, USA and Canada besides India. We have been able to earn a royalty more than 20 Lakhs from the successful commercialisation of technology.

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received:

- **MEAI-Smt.Kiran Devi Singhal Award 2015-16** by Mining Engineers Association of India for outstanding contribution in the field of Development and Conservation of Mineral and Environment in and around Metalliferous mines
- **MGMI-D.N.Thankur Award 2015-16** by Mining, Geological & Metallurgical Institute of India for outstanding contribution in Earth Sciences
- **CSIR Golden Jubilee CMRI Whitaker Award 2000** for outstanding contribution in Mining Engineering.
- **CSIR-DAAD Fellowship 2013** for conducting research work at T.U. Bergakademie Freiberg, Germany in the area of improving work place environment for deeper underground mines.
- **Member of Expert Appraisal Committee EAC of MOEF &CC, Govt of India**, for three years from June 2017 to June 2020 for environmental clearance of Thermal and Coal mine projects
- Member of Consultative Committee of TSCHE for upgradation of Kothagudem School of Mines to specialised Mining University under state Act in 2016. .

- **External Peer Reviewer** for the Department of Mining Engineering, IIT(BHU) Varanasi.
- Member of Core Group of Director, General of Mines Safety, Dhanbad for Drafting Mines Rescue Rules (amendment)
- Member of Advisory Committee of ENVIS Centre, Department of Environmental Science and Engg., IIT(ISM), Dhanbad in 2016
- Chaired technical session at First International Symposium on Mine Safety Science and Engineering, 27-28 October 2011, Beijing, China
- External Examiner for evaluation of Dissertation & Viva-voce of IV Sem. M.Tech. Mechanical Engg , IIT(ISM), Dhanbad
- External examiner for viva voce for M.Tech., Mining Engineering course by IIT (BHU), Varanasi
- Appointed External examiner for viva voce and, paper setting for B.Tech., Mining Engineering course by Binova Bhave University
- Invited to Chair a Technical Session in 29th International Conference on Safety in Mines Research Institute, Katowice, Poland. 8-11, October 2001
- Delivered invited talk in Science-Student interaction program of India International Science Festival, New Delhi in Dec 2016.
- Invited as expert for brain storming session on “Remedial measure from Silicosis among miners” by Desert Medicine Research Centre, (Indian Council of Medical Research) at DMRC Jodhpur in 2016
- Life Member/Fellow of 5 professional societies [MGMI, IE(I),MEAI, ISC, CSI]
 - Mining, Geological & Metallurgical Institute of India – Life Member (6896-LM).
 - Institution of Engineers(India) - Fellow (F-120342-4)
 - Mining Engineers Association of India – Life Member (LM-2514)
 - Indian Mining and Engineering Journal Readers’s Forum – Life Member (IMEJRF560)
 - Indian Science Congress Life Member (L11630)
 - Computer Society of India Life Member (00149532)

12. Societal Contributions

A number of research activities has positive societal impacts. This includes fire and dust control projects of Jharia coalfields. Some of these fire problems were affecting railway lines passing through it. Air circulation of Lord Jagannath Temple Puri and Patalbhubaneswar Cave temple of Pithoragarh District of Uttarkhand has visible societal contribution. Besides also participated in number of societal activities through Institute e.g. outreach program of IISF etc.