

### Brief Bio-data

1. Name: Dr. Bhagirath Ahirwal
2. Date of Birth: January, 1975
3. Current Position and Address (Include Email ID and Contact Number):  
Senior Principal Scientist, APD Section  
CSIR-CIMFR, Barwa Road, Dhanbad- 826001.  
(M: 9431158946 and E mail: ahirwalcmri@yahoo.co.uk)
4. Educational qualifications: (Graduation and above)

| Sl. No. | Degree | Year of Passing | University/Institute                                  | Subject                |
|---------|--------|-----------------|-------------------------------------------------------|------------------------|
| i       | B.E.   | 1996            | Indira Gandhi Govt. Engineering College, Sagar (M.P.) | Electrical Engineering |
| ii      | Ph D.  | 2014            | IIT (ISM), Dhanbad                                    | Electrical Engineering |

#### 5. Work experience:

| Designation             | Institute/company                                                         | From       | To         | Nature of Work                                  |
|-------------------------|---------------------------------------------------------------------------|------------|------------|-------------------------------------------------|
| Electrical Engineer     | Indian Rare Earths Ltd.,<br>Under Deptt. of Atomic Energy, Govt. of India | 29/09/1997 | 20/03/2002 | Installations and commissioning of Motor drives |
| Scientist-B             | CMRI, Dhanbad<br>(Now CSIR- CIMFR)                                        | 21/03/2002 | 20/03/2006 | R & D and certification of Ex equipment         |
| Scientist-C             | CSIR- CIMFR, Dhanbad                                                      | 21/03/2006 | 20/03/2010 | ---do---                                        |
| Sr. Scientist           | CSIR- CIMFR, Dhanbad                                                      | 21/03/2010 | 20/03/2014 | ---do---                                        |
| Principal Scientist     | CSIR- CIMFR, Dhanbad                                                      | 21/03/2014 | 20/03/2021 | ---do--                                         |
| Sr. Principal Scientist | CSIR- CIMFR, Dhanbad                                                      | 21/03/2021 | continuing | R & D on Ex equipment                           |

6. Work Area(s)/ Specialization: Design evaluation, assessment and Certification of Ex electrical equipment for hazardous area.

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

Completed number of projects related to Ex electrical equipment for BHEL, ECIL, ONGC, Oil India, Cairn Energy etc. for the safety of installations. Assessed and certified number of Ex electrical and electronic equipment as per National and International standards. Trained many executives of ONGC and Coal India to enhance the safety of mines. Provided R&D assistance to the Indian manufacturers to improve the safety, quality, productivity and competitiveness of Ex electrical equipment for hazardous areas. Significantly contributed to the formulation and harmonization of standards with respect to IEC 79 series for Ex electrical equipment.

8. No. of Research Publications:

- Papers in Journals: 39
- In conference proceedings: 62
- Invited lectures delivered: 02
- List of best 05 publications

|   |                                                                                                                                                                                                                                                      |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i | Ahirwal B. et al. "Study of Minimum Overpressure Location on High Tension Purged and Pressurized Protected Ex 'p' Motor for Explosive Atmospheres" <b>Elsevier-International Journal of Electrical Power and Energy Systems</b> , USA, Vol. 41, 120– |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 123, 2012. (Impact Factor 4.63)                                                                                                                                                                                                                                                                             |
| ii  | Bhagirath Ahirwal & Tarun Kumar Chatterjee, "Design, ignition risk assessment and testing of increased safety HT induction motor for explosive atmospheres", <b>IET Electric Power Applications</b> , UK, Vol. 7(5),1-8, 2013. (Impact Factor 2.834)                                                        |
| iii | Bhagirath Ahirwal and R. K. Vishwakarma, "Study of temperature classification, spark ignition and drop test assessment on secondary cells for intrinsically safe equipment for explosive atmospheres", <b>Process Safety Progress (Wiley publication)</b> , USA, Vol 38(4),1-7, 2019. (Impact Factor 1.344) |
| iv  | Bhagirath Ahirwal et. al. "Stress analysis due to internal explosion pressure of designed flameproof enclosure for hazardous area", <b>Process Safety Progress (Wiley publication)</b> , USA, Vol 39,1-6, 2020. (Impact Factor 1.344)                                                                       |
| v   | Bhagirath Ahirwal & Gautam Banerjee. "An experimental study on importance of bushing used in flameproof enclosure for hazardous area", <b>Journal of Failure Analysis and Prevention, Springer</b> , USA, Vol 21 (1),310-319, 2021.                                                                         |

- Books/Chapters authored/edited

|    |                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------|
| i  | Design, Development, Testing and Certification of Ex-equipment. (ISBN:978-81-8465-126-3)                   |
| ii | Recent Trends in Design, Development, Testing and Certification of Ex-equipment. (ISBN :978-93-5196-303-5) |

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

|     |                                                                                                                                                                                                                     |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i   | Assessment and advice for healthiness/suitability of electrical equipment installed in hazardous area at Suvali on shore. (M/s Cairn Energy)                                                                        |
| ii  | Assessment and advice for suitability of Electrical equipment installed at hazardous area of ONGC as per different relevant standards. (M/s ONGC)                                                                   |
| iii | Advice & technical discussion on SG-Smart Data Acquisition System for Oil Mines of India for safe use in Zone-1 & Zone 2 hazardous area. (MI Swaco, UAE)                                                            |
| iv  | Assessment of temperature classification of flameproof motors and assessment of intrinsically safe equipment for safe use in hazardous area as per different ruling Indian Standards. (Sany Heavy Equipment, CHINA) |
| v   | Examination, Investigation and Advice on Increase safety (Ex e) HT Motor for use in hazardous area. (M/s BHEL)                                                                                                      |

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

|     |                                                                                                                                                                                                                  |
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| i   | A device for clamping armoured cable in the Cable Gland                                                                                                                                                          |
| ii  | Purging or Ventilation System and Control unit or apparatus for Increased safety and Non-sparking motors for explosive gas and dust atmospheres                                                                  |
| iii | Oil immersed (Ex o) cum Increased Safety (Ex e) Transformer with observation window, Ex hooter and other safety features for use in Hazardous Areas of Oil Mines and areas where similar hazards are encountered |
| iv  | Purge and pressurized (Ex p) protected variable speed drives (VSDs) suitable for use in Hazardous Areas                                                                                                          |

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

- National Mining Engineering Design Award -2015 conferred by IEI (India).
- Excellence in Leadership Award-2016 conferred by The International Society of Automation (ISA) Asia Pacific.

12. Societal Contributions: Our certified Ex equipment are used by the industries which enhance the safety, resulting in delivering the output with increased productivity.

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