


## Brief Biodata

**Name: Dr. Daya Soni**

<b>Designation:</b>	Principal Scientist	
<b>DP No. and Name:</b>	3.02; Gas Metrology	
<b>DU No. and Name:</b>	3.0; Environmental Sciences and Biomedical Metrology Division	
<b>Email:</b>	<a href="mailto:dsoni@nplindia.org">dsoni@nplindia.org</a>	
<b>Date of Joining CSIR-NPL:</b>	12.02.2007	
<b>Phone (office)</b>	011 47091628	

### Research Area/ Interest

- Gas Metrology and Air quality measurements
- Testing and calibration related to gas mixtures and particulate matter,
- Research work related to development of gas mixture standards, Validation of gases/ Impurity analysis.
- R & D related to method development for metal analysis using various techniques like Atomic Absorption/ Emission Spectrometry (AAS, AES/ OES, ICP, UV-Vis etc)
- Development of CRMs, Homogeneity/Stability studies and other related concepts
- Development of dynamic dilution method for preparation of reactive gas mixtures.
- Development of Gas phase titration method

### Educational Qualifications

*(Please write latest qualification first)*

Degree	Subject	University/ Institute	Year
Ph.D.	Chemistry	M. D. University, Rohtak, Haryana	2001
M.Sc.	Inorganic Chemistry	M. D. University, Rohtak, Haryana	1997
B.Sc.	Chemistry, Botany, Zoology	M. D. University, Rohtak, Haryana	1995

### Academic / Research Experience

Grade / Post	Institute	Duration		Research Field
		From	To	
Principal Scientist	CSIR-NPL	Feb 2018	Till date	Gas metrology, air quality measurements, Testing and calibration related to gas mixtures and particulate matter, research work related to development of gas mixture standards, Measurement

				Uncertainty in Chemical analysis
Senior Scientist	CSIR-NPL	Feb 2014	Feb 2018	Gas metrology, air quality measurements, Testing and calibration related to gas mixtures and particulate matter, research work related to development of gas mixture standards, Trace metal analysis using AAS and ICP HRMS, Measurement Uncertainty in Chemical analysis
Scientist	CSIR-NPL	Feb 2010	Feb 2014	“Metrology in Chemistry” and “Certified Reference Material” Activity with a focus on Inorganic and Gas Metrology  Chemical Characterization of materials using classical methods and instrumental methods Measurement uncertainty budget preparation Trace metal analysis using AAS and ICP HRMS.
Junior Scientist	CSIR-NPL	Feb 2007	Feb 2010	“Metrology in Chemistry” and “Certified Reference Material” Activity with a focus on Inorganic and Gas Metrology  Chemical Characterization of materials using classical methods and instrumental methods
Research Associate	CSIR-NPL	Feb 2002	Jan 2007	Synthesis, Characterization and Application of Organo-tellurium compounds

### No. of Publications

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books	Total
>25	-	>45	01	>70

## Selected Publications

1. A Practical Approach of Measurement Uncertainty Evaluation for Gravimetrically Prepared Binary Component Calibration Gas Mixture, Komal, **D. Soni\***, P. Kumari, Gazal, K. Singh and S. G. Aggarwal MAPAN-Journal of Metrology Society of India  
<https://doi.org/10.1007/s12647-022-00600-2>
2. Development of a certified reference material (CRM) for seven trace elements (Al, Ca, Fe, K, Mg, Na and Ti) in high purity quartz, A. Durga Prasad<sup>a</sup>, S. Thangavel<sup>a</sup>, Lori Rastogi<sup>a</sup>, **D. Soni<sup>c</sup>**, K. Dash<sup>a,b,\*</sup>, Sunil Jai Kumar<sup>a</sup>, Microchemical Journal, 172 (2022) 106926
3. Preparation and Certification of Indian Reference Material of Bituminous Coal, T. B. Das<sup>1</sup>, U. S. Chattopadhyay<sup>1</sup>, **D. Soni<sup>2,3,\*</sup>**, K. Singh<sup>2</sup> and P. K. Singh, MAPAN-Journal of Metrology Society of India, Vol 36, pp129 -138 (2021).
4. Final report for supplementary comparison APMP.QM-S9.2017: 100 µmol/mol of carbon monoxide in nitrogen, Jeongsoo Lee<sup>1</sup>, JinBok Lee<sup>1</sup>, Jeongsik Lim<sup>1</sup>, Dongmin Moon<sup>1</sup>, Shankar G Aggarwal<sup>2</sup>, Prabha Johri<sup>2</sup>, Daya Soni<sup>2</sup>, Liu Hui<sup>3</sup>, Kai Fuu Ming<sup>3</sup>, Ratirat Sinweeruthai<sup>4</sup>Show full author list, *Metrologia*, Volume 58, Number 1A, (2021).
5. Final report for supplementary comparison APMP.QM-S15: carbon dioxide in nitrogen at 1000 µmol/mol; Jeongsoo Lee<sup>1</sup>, JinBok Lee<sup>1</sup>, Jeongsik Lim<sup>1</sup>, Dongmin Moon<sup>1</sup>, Shankar G Aggarwal<sup>2</sup>, Prabha Johri<sup>2</sup>, **Daya Soni<sup>2</sup>**, Liu Hui<sup>3</sup>, Kai Fuu Ming<sup>3</sup>, Ratirat Sinweeruthai<sup>4</sup>, Soponrat Rattanasombat<sup>4</sup>, Oman Zuas<sup>5</sup>, Harry Budiman<sup>5</sup>, Muhammad Rizky Mulyana<sup>5</sup> and Vladimir Alexandrov<sup>6</sup>Hide full author list; *Metrologia*, Volume 58, Number 1A, (2021).
6. Final report of supplementary comparison for APMP.QM-S7.1: methane in nitrogen at 2000 µmol/mol, K Hong<sup>1</sup>, B M Kim<sup>1</sup>, H K Bae<sup>1</sup>, S Lee<sup>1</sup>, J Tshilongo<sup>2</sup>, D Mogale<sup>2</sup>, P Seemane<sup>2</sup>, T Mphamo<sup>2</sup>, H A Kadir<sup>3</sup>, M F Ahmad<sup>3</sup>, N H A Nasir<sup>3</sup>, N Baharom<sup>3</sup>, **D Soni<sup>4</sup>**, K Singh<sup>4</sup>, S Bhat<sup>4</sup>, S G Aggarwal<sup>4</sup> and P Johri<sup>4</sup> *Metrologia*, Volume 57, Number 1A, (2020).
7. Some Preliminary Results of Particulate Matter Metrology, Indian Journal of Air Pollution Control, Kritika Shukla, Rishu Agarwal, Prashant Patel, Khem Singh, **Daya Soni**, Prabha Johri, Shankar G. Aggarwal and Vikas K. Jain, Vol XX, No. 1-2, pp. 1-7, (2020).
8. Contaminant and other elements in soil(CCQM-K127), M Rocio Arvizu Torres<sup>1</sup>, J Velina Lara Manzano<sup>1</sup>, Edith Valle Moya<sup>1</sup>, Milena Horvat<sup>2</sup>, Radojko Jaćimović<sup>2</sup>, Tea Zuliani<sup>2</sup>, Polona Vreča<sup>2</sup>, Osvaldo Acosta<sup>3</sup>, John Bennet<sup>4</sup>, James Snell<sup>5</sup>, Marcelo D Almeida<sup>6</sup>,Rodrigo C de Sena<sup>6</sup>, Emily S Dutra<sup>6</sup>, Lu Yang<sup>7</sup>, Haifeng Li<sup>8</sup>, Jingbo Chao<sup>8</sup>, Paola Fisicaro<sup>9</sup>,Michael H P Yau<sup>10</sup>, Wai-hong Fung<sup>10</sup>, Shankar G Aggarwal<sup>11</sup>, **Daya Soni<sup>11</sup>**, et al, *Metrologia*, **54**, Technical Supplement, (2017).
9. “International comparisons of the determination of cadmium and lead in herb: the Comite Consultatif pour la Quantite de Matiere (CCQM) pilot study CCQM-P97” Y. C. Wong, D. W. M. Sin, Y. C. Yip, L. Valiente, A. Toerveniyi, J. Wang, G. Labarraque, P. Gupta, **D. Soni**, Surmadi, E. Hwang, C. Yafa, O. Cankur, E. Uysal, G. Turk, R. Huertas *Accred Qual Assur* (2009), 14:151-159, DOI 10.1007/s00769-009-0401-1 (IF 0.725, 525 Cites)
10. Synthesis and Characterization of Telluroxide Complexes of Some Organotellurium (IV) Trichlorides and Organotin(IV) Chlorides, K.K.Verma, **Daya soni** and Sunil Verma, *Journal of Indian Council of Chemist*, **19**(1), 2002, pp 1-7

11. Diaryltellurium(IV) Carboxylates : Synthesis and Characterization via Telluroxide, K.K.Verma, **Daya Soni** and Sunil Verma, *Phosphorus, Sulfur and Silicon*, **166**, 2000, pp 231-241.

12. Synthesis & Characterization of Complexes of Some Hydroxyaryltellurium(IV) trichloride with N-Donor Ligands, K.K.Verma, Reena Dhaiya and **Daya Soni**, *Synth. React. Inorg. Met.-Org. Chem.*, **29**(6), 1999, pp 1033.

### **Patents**

1. Process for preparing Zinc peroxide nanoparticles” US#8,715,612

2. “Particulate Matter Sampler” US 10,782,212 B2, 2020.

3. “Tangential Six-Inlet Co-Cylindrical Cyclone for PM10 Sampling” Indian Patent, No. 202111014940, Date: 31.03.2021

4. A mask testing setup, Indian Patent, No. 202111045226, Date: 05.10.2021

### **Current Activities**

(Not more than 100 words)

- Preparation of Primary Reference Gas Mixtures (PRGMs) for greenhouse gases, pollution gases, energy and emission gases, particulate matter standard.
- Participation in international inter-comparisons and to organise proficiency testing programme.
- Dissemination of traceability to SI unit ‘mole’ through PRGMs
- Calibration of particulate matter samplers, devices/sensors and related testing and project jobs.
- Impurity analysis in matrix gases to be used for gas mixture preparation.
- Research and development for gas related reference methods and standards.
- Organising workshop, training, awareness and skill development programs.

### **Honour(s)/Award(s)/ Fellowship(s)**

- Gold Medal in M.Sc. Chemistry
- University Research Fellowship for Ph.D
- CSIR-Research Associate Fellowship
- CSIR-NPL Technology Licensed award 2017 for successful transferring the technology of High-Volume PM<sub>2.5</sub> Impactor Sampler to an industry.
- CSIR-NPL Product Development award 2017 for developing Certified Reference Material of Bituminous Coal, BND5101A in collaboration with CSIR-CIMFR, Dhanbad.
- CSIR-NPL Product Development award 2017 for developing Certified Reference Material of High Purity Gold, BND 4201 in collaboration with Mint Mumbai.

### **Contributions to AcSIR**

- Associate Professor
- Teaching Faculty for Engineering Science Course “ Air Quality Measurement Science and Technology” a 3-Credit Course (**AcSIR-32-ES-AD-002**)
- Ph.D Supervisor – 03 SRF (pursuing Ph.D) ; Co Supervisor – 02 SRF (pursuing Ph.D)
- M.Sc. Dissertation Guide – 03 (Completed)
- Nominated as DAC members for AcSIR Ph.D students.

### **Membership of Professional Societies/ Institutions**

1. Life member of Indian Association for Air Pollution Control (IAAPC)
2. Life member of Indian Society of Analytical Scientists (ISAS)
3. Life member of Metrology Society of India (MSI)
4. Life member of Indian Women Science Association (IWSA)
5. Member of CHD 1 committee of Bureau of Indian Standards (BIS).

### **Any other Information**

*(Not more than 100 words)*

Also serves her duties as assessor (ISO 17034: 2016 and ISO/IEC 17025:2017) for National Accreditation Board for Testing and Calibration Laboratories (NABL) in the area of Gas, Water and Metal & Alloys.