

CSIR Integrated Skill Initiative

Solar Salt Production Process and Quality Control Aspects (SSP&QC)



CSIR-Central Salt & Marine Chemicals Research Institute
7th September – 9th September, 2026

**Venue: Shree Ambica Salt Works, Ekta House, 4A - 4B, Akruiti Society,
Near C-Division Police Station, Zadeshwar Road, Bharuch - 392001**

CSIR-CSMCRI is a premier global research institute specializing in advanced R&D for salt and marine biochemical products. As India's sole institution dedicated to pioneering innovations in salt manufacturing, CSIR-CSMCRI has successfully engineered cost-effective technologies for extracting high-purity solar salts from diverse sea and subsoil brine resources nationwide.

To deliver technological excellence through economically viable and environmentally sustainable practices, the institute actively collaborates with industry partners, academic institutions, and R&D organizations. This commitment to innovation is reflected in numerous domestic and international patents, as well as the successful transfer of proprietary technologies to the salt manufacturing sector. In alignment with its broader societal mission, CSIR-CSMCRI conducts land feasibility surveys, establishes model salt works across India, and delivers specialized training programs for manufacturers and industrial personnel to demonstrate industry best practices.

Additionally, the institute collaborates with governmental and non-governmental entities—including SEWA, ANANDI, and ARHAM—to develop regional salt clusters. These initiatives aim to impart scientific rigor in solar salt production and quality management, cultivating a skilled workforce to empower salt and salt-based industries.

Coordinator:

Dr. Alok Ranjan Paital,

Coordinator,

Training program on “Solar Salt Production Process and Quality Control Aspects”

Sr. Principal Scientist, Salt & Marine Chemicals Division,

CSIR-CSMCRI, G.B. Marg, Bhavnagar-364002 (Gujarat)

Faculty

Salt & Marine Chemicals Division, CSIR-CSMCRI, Bhavnagar



Dr. Alok Ranjan Paital,
Sr. Principal Scientist,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. Arvind Kumar,
Chief Scientist & Head,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. S. C. Upadhyay,
Chief Scientist,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. B. R. Andharia,
Principal Scientist,
Salt & Marine Chemicals
Division
CSIR-CSMCRI



Dr. Bipin G. Vyas,
Principal Scientist,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. Sumit B Kamble,
Sr. Scientist,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. Parul Sahu,
Sr. Scientist,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. Rahul J Sanghavi,
Pr. Technical Officer,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Dr. Jignesh J. Shukla,
Sr. Technical Officer,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI



Mr. Sameer J Bhatti,
Technical Assistant,
Salt & Marine Chemicals
Division,
CSIR-CSMCRI

Training Program Curriculum

Theory Sessions:

1. Examination of the Chemistry Involved in Salt Manufacturing: Delve into the chemical processes underlying the formation and extraction of salt, including crystallization and purification methods.
2. Analysis of Layout and Design Parameters Governing Solar Salt Works: Explore the spatial organization and structural considerations crucial for the efficient operation of solar salt works, encompassing factors such as land topography and infrastructure layout.
3. Study of Soil Characteristics and Methods for Soil Analysis: Investigate the diverse properties of soil relevant to salt production, such as composition, texture, and moisture content, and learn techniques for comprehensive soil analysis, including sampling and testing methodologies.
4. Management Strategies for Brine and Bittern: Learn effective strategies for the management and utilization of brine and bittern, by-products of salt production, focusing on environmental sustainability and resource optimization.
5. Techniques and Protocols for Salt Harvesting & Handling: Acquire practical skills and knowledge essential for the harvesting, transportation, and storage of salt, emphasizing quality control and operational safety.
6. Implementation of Mechanization in Solar Salt Works: Principles and Applications: Explore the integration of mechanized equipment and automation technologies in salt production processes, examining their advantages, challenges, and optimal deployment.
7. Analytical Techniques for Salt and Impurity Quantification: Master a range of analytical methods and instruments for precise quantification of salt purity and impurity levels.
8. Prioritization of Occupational Health and Safety Measures in Solar Salt Works: Understand the occupational hazards associated with salt production and implement proactive safety protocols and regulations to safeguard workers' well-being.
9. Field Exposure and Visits to Solar Salt Works: Observations and Learnings: Gain first-hand exposure to real-world salt production facilities through site visits and fieldwork, facilitating practical understanding and contextualization of theoretical concepts.
10. Insights from Invited Lectures by Industry Experts: Benefit from the expertise and experience of industry professionals through specialized lectures and interactive sessions, covering emerging trends, best practices, and industry insights.

Practical Sessions:

1. Application of Complexometric Titration for Calcium and Magnesium Analysis
2. Utilization of Argentometric Method for Chloride Analysis
3. Execution of Gravimetric Method for Sulphate Analysis
4. Iodometry Titration for Bromide and Iodide Analysis



केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद, भारत)

गीजूभाई बधेका मार्ग, भावनगर 364002 (गुजरात)

CSIR- Central Salt & Marine Chemicals Research Institute

(Council of Scientific & Industrial Research, India)

Gijubhai Badheka Marg, Bhavnagar – 364 002 (Gujarat)

www.csmcri.res.in



CSIR Integrated Skill Initiative

TRAINEE ENROLMENT FORM

TITLE OF SKILL DEVELOPMENT PROGRAM	:	CSIR-Integrated Skill Initiative: Solar Salt production process and quality control aspects (SSP&QC)
VENUE	:	Shree Ambica Salt Works, Ekta House, 4A - 4B, Akruti Society, Near C-Division Police Station, Zadeshwar Road, Bharuch – 392001 (Gujarat)
DATE(S), TIME:	:	Sep. 7th to 9th, 2026 Time: 9.30 AM to 5.30 PM
FULL NAME OF TRAINEE	:	
FATHER'S / HUSBAND'S NAME	:	
ADDRESS	:	
DATE OF BIRTH (DD/MM/YYYY)	:	
GENDER (MALE / FEMALE / OTHERS)	:	
CATEGORY (SC / ST / OBC / EWS / GENERAL)	:	
PHYSICALLY DISABLED (YES / NO)	:	
CURRENT STATUS (working/ entrepreneur/ student/ unemployed/ school dropout)	:	
QUALIFICATIONS	:	
PHOTO ID NUMBER (Aadhaar/ PAN/ Voter ID/ Passport)	:	
MOBILE NUMBER	:	
ALTERNATE MOBILE NUMBER	:	
EMAIL ADDRESS	:	
TRAINEE'S DOMICILE (RURAL / URBAN)	:	
FEE PAYMENT DETAILS :		
DATE: PLACE: SIGNATURE OF APPLICANT		

TRAINING PROGRAM FEE

₹ 1000/-+ ₹ 180/-GST = ₹ 1180/-	Category I : Self-sponsored [Students, Individual (other than student) and Entrepreneur (as an individual)]
₹ 5000/-+ ₹ 900/- GST = ₹ 5900/-	Category II: Any sponsored candidate (Government, Industry and sponsored by Entrepreneur)

DIGITAL PAYMENT ONLY WILL BE ACCEPTED and **NO CASH TRANSACTION.**

Details of fee payment

Amount:	
Bank Name:	
Branch Name:	
Account Number:	
Transaction ID and Date:	
SIGNATURE OF DEPOSITOR/APPLICANT	
Name: _____	

- Send the completed enrolment form along with your CV by **August 27, 2026**, via email to **arpaital.csmcri@csir.res.in**
- Selected candidates will be notified by email regarding payment details one week prior to the commencement of the training program.
- For queries, contact **arpaital.csmcri@csir.res.in** or **sarala.csmcri@csir.res.in**
- Fee is non-refundable. The Training program fee has to be deposited through NEFT or RTGS only.
- Mode of communication would be either in हिन्दी & / or in English.
- Accommodation must be arranged by the candidates themselves.
- No accommodation will be provided by the Institute.

S.No.	Parameter	Details
1	Name of Account Holder	DIRECTOR, C.S.M.C.R.I.
2	Address	GIJUBHAI BADHEKA MARG, BHAVNAGAR 364002
3	E-mail Address	fao.csmcri@csir.res.in
4	Phone No. / Mobile No.	0278-2471792
5	Fax No.	0278-2567562
6	Permanent Account Number (PAN)	AACCC1313P
7	Particulars of Bank Account	
	A. Name of the Bank	STATE BANK OF INDIA
	B. Name of the Branch	WAGHAWADI ROAD BRANCH
	C. Branch Code	10863
	D. Address	Shubham Shop No. G2/3, Plot No. 2569 E1/2, Waghawadi Road, Opp. Gulista Ground, Bhavnagar - 364002 E-mail: sbi.10863@sbi.co.in
	E. Telephone No.	0278-2569884
	F. Account No.	30267310153
	G. Type of Account	SAVINGS BANK ACCOUNT
	H. IFSC Code (RTGS/NEFT)	SBIN0010863
	I. MICR Code	364002023

Training Activities

CSIR Integrated Skill Initiative — Solar Salt Production and Quality Control Aspects (SSP&QC)

Code	Topic / Subject	Faculty
SALT-1	Chemistry of Marine Salts, recovery and their applications & recent developments	Dr. Arvind Kumar
SALT-2	Layout and design parameters of solar salt works	Dr. Bhoomi R. Andharia
SALT-3	History of common salt, quality parameters of grades, & fortifications	Dr. Alok Ranjan Paital
SALT-4	Brine management, salt harvesting/handling equipment, & mechanization	Dr. Arvind Kumar Dr. S.C. Upadhyay, Dr. Bipin G. Vyas
SALT-5	Classical and advanced methods of Salt analysis, quality control parameters, and estimation of impurities like microplastics from salt. Pure brine generation via integrated marine chemicals recovery including bromine production	Dr. Sumit B. Kamble, Dr. Rahul J. Sanghavi, Dr. Jignesh J. Shukla, Mr. Sameer J. Bhatti
SALT-6	Occupational health and safety in solar salt works	Mr. Rishikesh Chormare, Dr. Bipin G. Vyas
SALT-7	Soil characteristics, soil analysis, classification, permeability, & percolation management	Dr. Jignesh J. Shukla Dr. Bhoomi R. Andharia
SALT-8	Bittern products including critical metal ions	Dr. Alok Ranjan Paital
SALT-9	AI and digital technologies & Automation in salt production & Management of Climate Challenges in Solar Salt Works	Dr. Bhoomi R. Andharia
SALT-10	Practical: Soil analysis and Assessment of Engineering Properties	Dr. Jignesh J. Shukla Dr. Bhoomi R. Andharia
SALT-11	Practical: Analytical techniques for salt analysis	Dr. Sumit B. Kamble, Dr. Rahul J. Sanghavi, Dr. Jignesh J. Shukla, Mr. Sameer J. Bhatti
SALT-12	Q&A Session	Dr. Arvind Kumar Dr. S.C. Upadhyay, Dr. Alok Ranjan Paital, Dr. Bhoomi R. Andharia
SALT-13	Field Visit: Issue identification & solutions	Dr. Arvind Kumar Dr. S.C. Upadhyay, Dr. Alok Ranjan Paital, Dr. Bhoomi R. Andharia, Dr. Rahul J. Sanghavi