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OBJECTIVE:

Development of Conventional & Nano-coating Technology

HIGHLIGHTS

More than 20 years of diverse industrial and R & D experience. Extensive analytical characterization and data interpretation skills. Strong analyses skills. Industrial experience in quality control and production of coatings. Developed water based Epoxy and Polyurethane coatings. Hands-on experience on different types of analytical instruments.

SKILLS & ACCOMPLISHMENTS

ANALYTICAL SKILLS

Analytical method development for qualitative and quantitative analysis.

Metals analysis using AAS and other wet chemistry parameters. HPLC and UV-VIS Spectrophotometer, Meck beth color eye, Gloss meter, Scrub tester, Drying recorder, DFT, Opacity, Hardness instruments have been used for paints industry. Presently, Atlas Xenon and QUV accelerated weathering machine, Cone Calorimeter for flammability test and UV radiation curing machine to cure the Polyacrylate based polyurethane and Polyester based coatings are being used at **KACST** (king Abdul Aziz City for Science and Technology) and at **CEREM** (King Saud University) for the analysis of various types of coatings.

EMPLOYMENT HISTORY:

2010-2011 Onwards: King Saud University/ Saudi Aramco Project / CEREM
Current Activities:

1. **Project No1.** King Saud University/ Saudi Aramco Project / CEREM on Epoxy based Nano-Coating:

Worked on a Joint project (**CEREM-Saudi Aramco**) to develop High Performance Corrosion Resistant and Chemical Resistant Epoxy nano-coatings for offshore structural application at Saudi Aramco Sites.

- The working period for the project approved by Saudi Aramco authorities was three years. The initial studies for the nano-Coating project and

Laboratories setup, procurement of raw materials was carried out and completed.

- The experimental work started and final successful progress reports have been submitted to Saudi Aramco and CEREM (Center of excellence for research in engineering materials) and approved by Saudi Aramco Final technical report contains improved **new product of Epoxy nano-coating formulation**.
- Three papers have been published based on above mentioned experimental work with new developed formulations of Epoxy/2Pack nano-coatings.

1. Mechanical Properties and Corrosion Behavior of Different Coatings Fabricated by Diglycidyl Ether of Bisphenol-A Epoxy Resin and Aradur®-3282 Curing Agent

Mohammad Asif Alam¹, El-Sayed M. Sherif¹, Saeed M. Al-Zahrani¹,

²International Journal of Electro chemical Science ISI Impact Factor 2.7

Published Int. Electro-chemical. Sci., 8 (2013)

2. Fabrication of Various Epoxy Coatings for Offshore Applications and Evaluating Their Mechanical Properties and Corrosion Behavior.

Mohammad Asif Alam, El-Sayed M. Sherif, Saeed M. Al-Zahrani

²International Journal of Electro chemical Science ISI. Int. J. Electrochem. Sci., 8 (2013) 3121 - 3131 International Journal of ELECTROCHEMICAL SCIENCE ISI Impact Factor 2.7

3. Fabrication of Different Protective Coatings and Studying their Mechanical Properties and Corrosion Behavior in Sodium Chloride Solutions

El-Sayed M. Sherif^{1,2,*}, **Mohammad Asif Alam**¹, Saeed M. Al-Zahrani^{1,3}

Int. J. Electrochem. Sci., 10 (2015) 373 – 387 Impact Factor 2.7

4. Manufacturing and Characterization of Corrosion Resistant Epoxy/2Pack

Coatings Incorporated with Polyaniline Conductive Polymer

Ubair Abdus Samad^{1,2}, **Mohammad Asif Alam**², El-Sayed M. Sherif^{2,3,*}, Othman Alothman^{1,4}, Asiful H. Seikh² and Saeed Al-Zahrani², Int. J. Electrochem. Sci., 10 (2015) 5599 – 5613

5. Facile synthesis of epoxy nanocomposite coatings using inorganic Nano-particles for enhanced thermo-mechanical properties: A comparative study Rawaiz Khan, Muhammad Rizwan Azhar, Arfat Anis, **Mohammad Asif Alam**,

M. Boumaza, Saeed M. Al-Zahrani Journal of Coating. Technology & Research

DOI 10.1007/s11998-015-9736-6 American Coatings Association 2015

Impact Factor 1.2

6. Effect of ZnO Nano Powder on Mechanical properties of Epoxy/Polyamino-amine Adduct Coatings.
Rawaiz Khan¹, Ubair Abdus Samad¹, **Mohammad Asif Alam**², M. Boumaza¹, Saeed M. Al-Zahrani
International Journal of Advances in Computer Science and Technology (IJACST), Vol.2, No.11, Pages: 25 – 28
7. **Effect of addition of Ag nano powder on mechanical properties of epoxy/polyaminoamide adduct coatings filled with conducting polymer.**
Ubair Abdus Samad, Rawaiz Khan, **Mohammad Asif Alam**, Othman Y. Al-Othman, and Saeed M. Al-Zahrani
Citation: AIP Conference Proceedings **1664**, 0700 (2015);10.1063/1.4918451
Published by the AIP Publishing.
8. **Effect of different compaction and sintering conditions on the thermo-mechanical properties of bulk aluminum produced using mechanical alloying,**
Muneer Baig, Asiful Hossain Seikh, Hany Rizk Ammar, **Mohammad Asif Alam**, Jabair Ali Mohammed
AMPT2014, Nov 16-20, 2014, Dubai, UAE [accepted for publication in the Journal of AMPT published by Taylor and Francis Publishers
9. Coating compositions comprising a poly-urethane polyols composition and nano-particles, and process for preparing the same.
EUROPEAN PATENT APPLICATION
Date of publication:
21.10.2010 letin 2010/40
(21) Application number: 09004204.5
10. Improved Ultraviolet (UV) Radiation Stability of the Polypropylene (PP) Films of Woven Jumbo Bags for Outdoor Applications.

Ahmed Ali Basfara; Khondoker M. Idriss Alia; Milind M. Vaidyab; Ahmad A. Bahamdanb; **Mohamma Asif Alam**
Radiation Technology Center, Atomic Energy Research Institute, King Abdul-Aziz City for Science and Technology, Riyadh, Saudi Arabia b Corrosion Unit, Materials Department, Research and Development Center, SAUDI ARAMCO, Dhahran, Saudi Arabia
Online publication date: 07 July 2010 Polymer-Plastics Technology and Engineering. 49: 8, 841 — 847

2. Project No 2. KSU/ CEREM

- Development of Corrosion Protection of Petroleum Industries by New High-Potential Conducting Polymers based Nano-composites Coating.
- The experimental work on this project started on Ist January 2012

- Final Report Submitted which contains a product of Epoxy nano-coating with a conducting polymer for petroleum Industries
- First Paper has been published in an ISI journal in 2015
- Second paper under submission in an ISI journal

3. Project No 3. Project Approved

Following Proposal approved by Saudi Aramco

Developing Epoxy /2Pack pigmented Coatings and their corrosion resistance performance evaluation for marine Applications.

4. Project No 4. Project submitted to Saudi Aramco

Following Proposals submitted

Evaluating the Corrosion Resistance of various Organic Coatings Using Electrochemical Impedance Spectroscopy (EIS).

5. Project No 5. Project submitted to SWCC

Steel Corrosion Protection with Epoxy Solvent free nano-coating. Collaboration Project between (SWDRI Jubail) and CEREM (K.S.U)

6. Project No 5. Project submitted to Ministry of Higher Education

Developing Water borne Eco- Friendly two-component Polyurethane Coatings System for Construction Industries Applications.

Proposal submitted for approval to Ministry of Education.

2003-2009:

Developed UV Stable films and tapes of PP & HDPE by using suitable resins from SABIC (KSA) and Borealis (Germany) for woven bags applications and characterization these films and tapes using above techniques. Also developed UV curing Polyurethane/2 Pack nanocoatings and polyester based nanocoatings for metal and automotive applications.

Nano particles incorporated polyurethane products attained higher Pendulum hardness and Scratch resistance as well as Abrasion resistance. The dispersion technique used for the product developed was Ultrasonic method of Dispersion. The research findings were submitted to European Union for a Patent.

2001-2003

Worked as a Research Chemist at King Abdulaziz City for Science and Technology (KACST) for a collaboration project with Saudi Arabia Basic Industries Corporation (SABIC) to develop “UV Stable Polyethylene Films” for out door applications. During the period I had to undertake the following responsibilities.

- Supervise the technicians to prepare the PE Films by the selection of proper resins and additives like HALS, UV Stabilizers for the formulation suitable for the applications by doing analysis such as OIT, DSC and TGA.

- Characterization of the prepared PE films through measurement of tensile properties using instron machine and thermal properties by using DSC and DTG and spectroscopic studies were performed by UV and FTIR-ATR spectroscopy.
- Determination of molecular weight of different PE resins manufactured by various suppliers by **GEL Permeation Chromatography (GPC)**.

1999-2000

Worked as Research Assistant in a joint co-operative project between Saudi Arabia and Japan at King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia. The project entitled “Water Impermeable Layer Formation Technology by Using Polymer Solutions”. in order to develop a protective layer in Saudi soil to prevent water at Muzahmiya agriculture station.

- To analyze the water and soil sample collected from different locations in Saudi Arabia to study the chemical interaction of soil cat-ion and polymer solution by using different analytical instruments.

1990-1999

Worked as a production manager in Saudi paint industry (Paintco) in Riyadh, Saudi Arabia, where I carried out the quality control of all the chemicals used for the paint industry and managed the production. Provided full support to all the projects of industrial coatings accomplished the product development of Polyurethane, Epoxy, N.C., and different newly developed products.

1985 -1990:

Worked as a chemist in R & D division in Saudi Paintco, Riyadh, Saudi Arabia for the development of Polyurethane coatings and Nitro cellulose coatings by the incorporation of standard quality raw materials in paint formulations.

Products were reformulated according to the requirement of different industries for the cost reduction purpose as follows.

Decorative coatings

Water based paints (Plastic emulsions)
Solvents based paints (Decorative enamels)

Industrial coatings

1. Polyurethane one pack
2. Polyurethane two pack
3. Polyurethane texture
4. Polyurethane lacquers
5. Polyurethane primers and Polyurethane top coat colors.
6. Epoxy coatings two pack solvent Based

7. Epoxy coating two pack Water based

Performed the technical services for the applications of all the industrial coatings.

Work Objective

- Laboratory start-up for the analysis of raw material samples.
- Chemical dosing performed and on-line instruments for pH, conductivity, etc..
- All the duties related to quality control were performed.

EDUCATION

Master of Science (Analytical Chemistry) from Aligarh Muslim University, India in 1983

Bachelor of Science (Chemistry) from Aligarh Muslim University, India in 1981

PRESENTATION

- Co-authored and presented in a seminar a scientific paper on the formation of impermeable polymer formation layer technology by using polymer solution in 2000 organized by KACST.
- Attended a Middle East Coating Conference in Egypt and Dubai in 2001.
- Attended a Nanocoating technology conference at King Abdulaziz City for Science and Technology in 2004 at KACST, Riyadh, Saudi Arabia.
- Attended a seminar organized by SABIC-ARAMCO on corrosion and coating of different metals in 2005 at SABIC R & D division, Riyadh, Saudi Arabia
- Participated in a workshop at Paris and Barcelona for installation and training of different type of coating instruments and colouring, mixing, grinding machines for coating industry.
- First – NACE (National Association of Corrosion Engineers) Jubail Industrial Conference. 17-19th October 2011 Jubail (K.S.A) Kingdom of Saudi Arabia. Organized by STC (Sabic Technology Center).
- European Coating Show and Congress 2011 at Nurnberg (Germany).
- Middle East Coating Conference and Show 2010 at Dubai (U.A.E).