Assistant Manager- Global Research and Development Center

Pune, Maharashtra

Assignment in the areas of senior position in the hard core synthesis and formulation of unsaturated polyester, epoxy adhesives, phenolic resin, benzoxazine resin, coatings, paints and electrical insulating resins and varnishes for Research and Development, Market Technology Development, Quality Control, Technical Service, Technical marketing.

Work Experience

Assistant Manager at Global Research and Development Center
Elantas Beck India Private Limited, Pune, Maharashtra
October 2015 to Present

Elantas Beck India Private Limited is member of ALTANA Group with an ISO 9001-2000 certificate. Elantas Beck India Private Limited is a leading manufacturer of electrical insulating resins and varnishes, paints and coatings (protective coatings, coil coatings), trickle impregnating resin, traction motors.

Job Profile: Reporting to Head of Research and Development Center

1. New product development and their characterization (Synthesis, formulation).
2. Modification of existing products as per customer's requirement.
3. Development of application methods for finishing and specialized resin and varnishes.
4. Assistance to technical services related issues of electrical insulating resins (polyester resin, epoxy resin), coatings, paints and varnishes.
5. Monitoring the control sample of paints, coatings and electrical insulating resins and varnishes.
6. ISO document compilation of on-going and completed projects of electrical insulating resins, varnish, paints and coatings.

Worked on Following Projects during this period

1. Development of air drying varnish with low drying time. This varnish is based on a specially designed alkyd resin with specific solvent composition.

2. Development of fast curing electrical insulating varnish with higher thermal stability. The varnish is composed of a specially designed alkyd-phenolic based resin which cures at elevated temperature.
3. Development of polyamide hardeners for epoxy curing. The hardener is specially designed to cure epoxy resin at room temperature with low exothermic peak. This hardener is suitable for casting and potting application.
4. Development of low viscosity with high thixotropic index filled epoxy resin and their amine hardener for stator motors. It holds its excellent mechanical properties over a wide range of temperature. This system shows very high glass transition temperature (T*g*). This system is suitable for high speed rotating armatures, starter motors and automotive generators transformers.
5. Development of single component filled epoxy system for starter motors. It gives the excellent mechanical properties as well as very high glass transition temperature (T*g*). This resin is suitable for high speed rotating armatures, starter motors and automotive generators transformers.

Senior Executive at Research and Development Center

Thermax Limited, Pune, Maharashtra

August 2013 to October 2015

Job Profile: New Product Development

1. New Product Development for the construction chemicals.
2. Work with the production team to set newly develop product at production scale.
3. Modification of existing products as per customer requirements.
4. ISO document compilation of on-going projects and completed projects, installation of new instruments and equipment.

Worked on Following Projects during this period

1. Majorly worked on development of Poly (carboxylic ether) (PCE) base superplasticizer to achieve the workability retention in Ordinary Portland cement (OPC) and Portland Pozzolana Cement (PPC). PCEs are synthesized by a side chain of different molecular weight of methoxy-

polyethylene glycol copolymer grafted with main chain of acrylic or methacrylic acid copolymer. This developed molecule is suitable for the reduction of the water to cement ratio, enhance the workability time of the mixture, to increase the strength of concrete (Completed and scale up at production).

2. Developed the Sodium Polynaphthalene Sulfonate is a high range water reducing superplasticizer (PNS). Sodium Polynaphthalene Sulfonate is made in powder and liquid form: in condition of brown water soluble powder or dark-brown water solution, this has the concentration of minimum 32% (Completed and scale up at production).
3. Closely worked on the Styrene-Butyl acrylate-Methyl methacrylate latex system for different applications. Methyl methacrylate (MMA), Styrene (St), acrylic acid (AA), and butyl acrylate (BA) monomers were used. Sodium dodecyl sulfate (SDS) was used as emulsifier, potassium persulfate (KPS) was used as initiator, and sodium bicarbonate and ammonia were used as buffer agent. This latex is suitable for pre and post water proofing application (Completed and scale up at production).
4. Develop the thermoplastic and thermoset resin for the wood and metal coating application (Completed in laboratory).
5. Development of vinyl polyester resin as react with epoxy (EEW=190) and acrylic and methacrylic acid and pre-accelerated for the polyester grout, encoring, rebaring and reinforcement application (Completed in laboratory).

Education

Ph.D (Material Science)
BITS- Pilani, 2013

M.Sc (Polymer Chemistry)
Solapur University, 2006

Contact Details

Dr Rajput Amit Balsing
amit.rajput337@gmail.com
+91-9850496977

A brief Overview of Research work carried out during Ph.D.

Title of the Thesis: “Preparation and Characterization of LLDPE-Polybenzoxazine-Ferrite Nanoparticle based Flexible Magnetic Nanocomposites.”

Ph.D. work deals with development of polymer nanocomposite and investigating their properties. Its application has been extended to exploration of novel systems and issues which are in material sciences.

- Developed a simple EDTA-precursor based chemical method for the preparation of single-phase ferrite nanoparticles (Such as $NiFe_2O_4$, $CoFe_2O_4$, $BaFe_{12}O_{19}$ etc.)
- Synthesis and Characterizations of flexible polymer nanocomposites materials and study of their properties like magnetic, electrical, microwave absorption, mechanical etc.
- Detail characterization of synthesized materials using FTIR spectroscopy, DSC, TG-DTA, Powder XRD, Practical size analyzer, BET Surface area and porosity analyzer, FESEM, HRTEM, etc.
- Variation of DC resistivity was measured by using a two-probe method employing a Keithley Electrometer. Room temperature magnetization of synthesized polymer nanocomposite was measured using VSM. Microwave absorption of polymer nanocomposites was measured using Vector Network Ananlyzer. It was found that polymer nanocomposites synthesized exhibited very good magnetic as well as microwave absorbing properties.

List of Publications

1. **Rajput A. B**., Ghosh N. N. Preparation and Characterization of Novel Polybenzoxazine-Polyester resin Blends. International Journal of Polymeric Materials. 2010, 59: 1-13.
2. **Rajput A. B**., Seikh J. R., Sarkhel G., Ghosh N. N. Preparation and characterization of flexible Polybenzoxazine-LLDPE composites. Designed Monomers and Polymers. 2012, 16: 177-184.

3. **Rajput A. B**., Seikh J. R., Sarkhel G., Patra M. K., Vadera S. R., Singru P. M., Yagci Y., Ghosh N. N. Synthesis, Characterization, and Properties of Flexible Magnetic Nanocomposites of Cobalt Ferrite-Polybenzoxazine-Linear Low-Density Polyethylene. Journal of Applied Polymer Science. 2013, 128: 3726-3733.
4. **Rajput A. B**., Seikh J. R., Sarkhel G, Patra M. K., Vadera S. R., Ghosh N. N. Preparation, characterization and properties of flexible magnetic nanocomposites of NiFe2O4-polybenzoxazine-LLDPE. Polymer-Plastics Technology and Engineering. 2013, 52: 1-9.
5. Ghosh N. N., **Rajput A. B**. Preparation of polybenzoxazine-Ni-Zn Ferrite nanocomposites and their magnetic property. Handbook of Benzoxazine Resin. Eds.Ishida H., Agag T. Elsevier, Amsterdam, 2011.
6. **Rajput A. B**., Hazra S., Ghosh N. N. Synthesis and characterization of pure single-phase CoFe2O4 nanopowder via a simple aqueous solution based EDTA-precursor route. The Journal of Experimental Nanoscience. 2013, 8: 629-639.
7. **Rajput A. B**., Hazra S., Fernando G. F., Ghosh N. N. Synthesis of single-phase barium hexaferrite nanopowder via a novel EDTA-precursor based route and its DC resistivity and magnetic property. Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry. 2011, 41: 1114-1121.
8. **Rajput A. B**., Hazra S., Krishna N. B., Chavali P., Datla S., Ghosh N. N. Preparation of NiFe2O4 nanopowder via EDTA precursor and study of its properties. Particuology. 2012, 10: 29-34.
9. Ghosh N. N., Rajput A. B. Preparation of polybenzoxazine-Ni-Zn Ferrite nanocomposites and their magnetic property. Handbook of Benzoxazine Resin. Eds. Ishida H., Agag T. Elsevier, Amsterdam, 2011.
10. Ghosh N. N., Rajput A. B. Preparation of Mechanically Flexible Composites Composed of Polybenzoxazine-Linear Low-Density Polyethylene-Fumed Silica and Study of Their Properties. Advanced and Emerging Polybenzoxazine Science and Technology. Eds. Ishida H., Pablo Froimowicz. Elsevier, Amsterdam, 2017.

Key note on Resume

Knowledge of electrical insulating resin, varnishes, unsaturated polyester resin, epoxy resin, polyamide hardeners and their application and market. Knowledge of manufacturing of various resins such as phenolic resin, alkyd, saturated and unsaturated polyester, vinyl polyester resin, polyamide hardeners, single component filled epoxy component, thermoplastic and thermoset acrylics, polycarboxylic ether, polynaphtha sulfonate, styrene-butyl acrylate-methyl methacrylate latex and their application and market.