POLYMERUPDATE ACADEMY

EDUCATIONEM RESPONSUM EST

FUNDAMENTALS OF POLYMER TESTING

Digital Training Conducted by
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POLYMERUPDATE ACADEMY

INDEX

DIGITAL TRAINING DETAILS

Dates	Timing
01/08/2022	2:00 pm - 6:00 PM
02/08/2022	2:00 pm - 6:00 PM
03/08/2022	2:00 pm - 6:00 PM

INR 7,999 + GST

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SUMMARY

The use of polymers ranges from day-to-day use items to the engineering product spectrum. The versatility on offer makes it far above other classes of materials available to man. The application sectors include electrical and electronics, medical, packaging, civil and construction, chemical, agricultural, textiles, etc.

The properties of polymers play a very important role in the selection of the right material for the right applications. The course provides an overview of the polymer properties such as mechanical, flammability, permeation, electrical. optical, chemical, physicochemical biodegradability, etc. that are essential for the selection of raw materials and designing of the finished product. These tests that need to be conducted to ascertain the polymer properties, i.e., quality control and assurance, along with product testing, will be discussed.

Who this course is for?

- Any aspiring technologist who wants to enter the polymeric industry dealing in plastics, rubbers, fibres, resins etc.
- Quality Control/ Quality Assurance/R & D technicians from the compounding and associated polymer industries.
- Marketing/Sales executives inclusive of dealers and distributors who would love to have a competitive edge over other suppliers in convincing their customers with technical knowhow about the product.
- All levels of management (first line, middle and top) for personnel involved in some technical role in polymer industry
- Purchase department personnel enabling them for suitable buying of raw materials.

What will you learn?

- What are polymers and the basic properties on offer for their use?
- What is the meaning of testing terminology used in day-to-day industrial communication such as standards, specifications, test methods, sample preparation, and different modes of testing?
- How to test polymers for various properties including mechanical, electrical, physicochemical, chemical, optical, permeation, flammability, biodegradability etc.?
- Why role does these tests have for material selection?

COURSE CONTENTS – DAY 1

02:00 pm **Introduction to Polymer Testing**

Overview about polymers, standards, specifications, and the need of polymer testing along with its role in polymer industry.

02:40 pm **Mechanical Properties**

Introduction to mechanical properties, stress-strain curve, UTM, tensile testing, flexural testing, compressive testing, impact strength testing, hardness test, abrasion resistance testing, fatigue, creep, and stress relaxation.

04:10 pm Q&A Session

04:25 pm Tea & Coffee Break

04:40 pm **Flammability Characteristics**

Introduction to flammability characteristics, basics of fire and fire hazards, ignition properties and ignition temperature, limiting oxygen index, and UL 94 flammability testing.

05:45 pm Q&A Session

COURSE CONTENTS – DAY 2

02:00 pm **Permeation Properties**

Introduction to thermal properties, testing polymers for various permeability characteristics such as water vapor and gas transmission rate.

02:45 pm Q&A Session

03:00 pm Refreshment Break

03:10 pm **Electrical Properties**

Introduction to electrical properties, testing polymers for various electrical properties such as dielectric strength, dielectric constant, dissipation factor, electrical surface and volume resistivity and arc resistance.

04:00 pm Q&A Session

04:15 pm Tea & Coffee Break

04:25 pm **Chemical Properties**

Introduction to chemical properties, testing polymers for various chemical properties such as immersion tests, stain resistance, solvent and environmental stress cracking resistance.

05:45 pm Q&A Session

COURSE CONTENTS- DAY 3

02:00 pm **Optical Properties**

Introduction to optical properties, testing polymers for various optical properties such as refractive index, luminous transmittance, haze, color evaluation (spectrophotometric, colorimetric and visual evaluation) and gloss.

02:50 pm Q&A Session

03:05 pm Refreshment Break

03:20 pm **Physicochemical Analysis**

Introduction to physicochemical properties, testing polymers for various physicochemical properties such as density, specific gravity, water absorption, moisture analysis and sieve analysis, melting point and contact angle measurement.

04:25 pm Q&A Session

04:40 pm Tea & Coffee Break

04:55 pm **Biodegradation**

Introduction to biodegradation, its mechanism, difference in compostable/ thermo- and photo-oxo-biodegradable/biodegradable polymers and the various tests conducted of plastics for their biodegradability.

05:45 pm Q&A Session

Dr. Prashant Gupta

B Tech. M. E. PGD. - CTM. Ph. D.

Born on June 6th, 1987, Dr. Gupta is a Polymer Technologist and has obtained his Masters, Post Graduate Diploma and Ph. D. from Institute of Chemical Technology, Mumbai. With virtue of his excellence in PGD-CTM course, Dr. Gupta has been awarded with a Gold Medal for securing top merit in the course.

Dr. Gupta has 5.5 years of academic experience (teaching/research) along with Industrial Research & Development experience in managerial positions for around 3.5 years in polymer compounding, testing, processing, and composites. Dr. Gupta has more than 20 publications to his credit in peer reviewed journals and books with high impact international (Elsevier, Wiley, Springer, Taylor & Francis etc.) publishers.

His areas of expertise and teaching include testing and quality control, polymer additives and compounding, polymer processing technology, polymer recycling and waste management, biodegradable and oxo-degradable plastics for packaging, use of information and communication technology for effective teaching learning, pedagogy related to teaching-learning, artificial intelligence in teaching learning, content creation for virtual laboratory, its development and applications.

Dr. Gupta has offered his expertise in the form of technical presentations at more than 20 international and prestigious national conferences/events across the globe some of which include EUROTEC-France, ANTEC-Mumbai, ICERP-Hyderabad, PPS-Mumbai, APM-Lucknow, APA-Chandigarh, Rangotsav-Mumbai, AMAI-Ahmedabad, etc. and won several awards for best paper, poster, project etc. Dr. Gupta has also been recognized as a certified developer, mentor, and reviewer for Virtual Labs, Mumbai an initiative of IIT M, IIT D and IIT K under MHRD, India.

Work Experience:

Organization Name: Maharashtra Institute of Technology
Tenure: 19th Sep 2016 onwards
Assistant Professor-Plastics and Polymer Engineering Dept. (UGC Approved) Junior Scientist, MIT-Center for Advanced Materials Research and Technology

Organization Name: Loxim Industries Ltd.
Tenure: 1st Sep 2015 – 16th Sep 2016
HOD and Manager: R & D/Quality Control
Management and Customer Representative-ISO-TS 16949

Organization Name : Crest Composites and Plastics Pvt. Ltd, Ahmedabad Tenure: 21st Apr 14 –31st Aug 15
Assistant Manager, (R & D) Application Development

THANK YOU

PREPARED & CONDUCTED BY

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