

BASIC RHEOLOGY IN POLYMER TECHNOLOGY

Prof. (Dr.) D. D. Kale

B.Tech., M.Chem.Engg., Ph.D.

Chancellor

Polymerupdate Academy

Address:

1001/1002, Lodha Supremus,
Opp 'The World Towers' Senapati Bapat Marg,
Lower Parel (West), Mumbai - 400013,
Tel: (91-22) 61772000 (25 Lines)



INDEX

1. Basic concepts of Rheology
2. Measurement of Rheological properties
3. Applications

SUMMARY

Rheology is a science of flow or deformation. Making of any plastic product by normal techniques such as extrusion or molding needs that polymer melt or the solution flows in the desired and intended fashion.

Polymers exhibit very high viscosity as compared to normal solvents or monomers. They also possess complex flow properties. The viscosity depends upon the processing conditions. A given polymer may show very different behaviour at different speeds of extruder or it may show different behaviour in equipment of different sizes.

The masterbatch may show poor dispersion in one machine but may work satisfactorily in other machines. All these effects are related to rheology.

This course covers the basics of rheology (viscosity behaviour), the measurement techniques and applications of rheology in understanding polymer processing or manufacturing without the unwanted mathematical jargons.



WHO THIS COURSE IS FOR

The course is designed for almost everyone connected with the plastic industry:

- Manufacturers
- Processors
- Entrepreneurs
- Sales and Marketing personnel
- Masterbatch manufacturers
- Machinery manufacturers
- Students or anyone who wishes to upgrade oneself with this wonderful phenomena





Prof. (Dr.) D. D. Kale

B.Tech., M.Chem.Engg., Ph.D.

Chancellor

Polymerupdate Academy

Born on November 16, 1945, Prof. (Dr.) D. D. Kale is a Chemical Engineer and has obtained his Ph. D. from University of Salford, UK.

With a teaching experience of over 40 years, Prof. (Dr.) D. D. Kale retired from University of Mumbai's Department of Chemical Technology, UDCT, Mumbai in 2005 as a Professor of Polymer Technology and as a Head of the Department of Polymer Engineering.

At present, he is a technical advisor to Giriraj Group, Mumbai and in the past has also been a consultant to several plastics industries.

He is a member of high power expert committee to Government of Maharashtra on various environmental issues and is on the expert panel for centers of excellence by DCPC. (Dr.) D. D. Kale is also a member of committee to define single use plastics set up by Ministry of Chemicals and fertilizers, New Delhi.

He has been a Visiting Professor in South Korea.

After superannuation in 2005, he has worked with Reliance Industries Ltd. for a tenure of three years.

His research interests include polymer processing, rheology, product design and recycling. He has guided 28 Ph. D. and 65 Masters Students. He has published more than 100 papers in peer reviewed journals and has one patent to his credit. He has presented papers in several International conferences such as IUPAC and has travelled widely.

He is associated with many professional bodies such as PLASTINDIA, All India Plastics Manufacturers Association, (AIPMA), IPI and SPE etc.

Prof. (Dr.) D. D. Kale has trained more than 5000 undergraduate and post graduate students in India and overseas. He has also trained more than 1000 industry personnel and has successfully authored two books. He was Honorary Editor of the journal, "Chemical Engineering Journal" published by I.I.Ch.E., India

WORK EXPERIENCE:

- Jan 2018 till date - Technical Director, Euressia Polymers, Mumbai.
- Feb 1, 2010 to - May 2012 - Director, Shroff S R Institute of Chemical Technology, Vataria, Taluka Valia, Bharuch, Gujarat, India
- Aug 1, 2011 to Dec. 2012 - Visiting Professor, IIT Gandhinagar
- Jan 1, 2006 to Dec 31, 2008 - Advisor, Reliance Industries Ltd.
- Jan. 31, 1991 - Nov 30, 2005 - Professor of Polymer Technology, Head, Plastics and Paints Technology Division UICT, University of Mumbai.

AWARDS AND HONORS:

1. Elected as a Fellow of Maharashtra Academy of Science (1998)
2. Received the Teaching Services Award (Best Teacher) of Mumbai University, 2003-2004
3. Received the Prof. K. S. Armugam National Award for Innovative Research in the Field of Engineering and Technology by the Indian Society for Technical Education (ISTE) New Delhi (2004)
4. Received 'Life Time Achievement Award' from Color Society, (2015)

OTHER INFORMATION:

- Editor 'Chemical Engineering Journal' published by I.I.Ch.E. (1992 – 94)
- Designed course work for
Plastics for non-plastic personnel,
Flexible packaging
Coloration of plastics
Chemical Engineering for plant personnel
- Headed the Knowledge Management group of I.P.I.
- Member of Board of Studies for Polymer Engg. Course of many Universities.

Has organized more than 10 Refresher Courses for Industry on behalf of Professional Bodies like IPI, SPE, Indian Institute of Chemical Engineers, Indian Small Scale Paint Association.

THANK YOU

Prof. (Dr.) D. D. Kale

B.Tech., M.Chem.Engg., Ph.D.

Chancellor

Polymerupdate Academy

Address:

1001/1002, Lodha Supremus,
Opp 'The World Towers' Senapati Bapat Marg,
Lower Parel (West), Mumbai - 400013,
Tel: (91-22) 61772000 (25 Lines)