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CRP technology first-hand: BYK-Chemie rolls out new additives

As a technology leader in the field of paint and plastics additives, BYK-Chemie has been working for over a decade with polymerization processes that permit a more deliberate structure to be produced in the additive, replacing the purely statistic distribution of monomer modules. It was in 1999 that BYK-Chemie rolled out the first two coating additives on the global market: DISPERBYK®-2000 and DISPERBYK®-2001. These additives have since been reliably produced on a large scale on the basis of a controlled, yet still fairly limited, polymerization process (GTP). The great success of these two innovations shows that new technologies are being used to tackle the growing complexity of the market environment, in order to meet the further challenges of the future head on.

Regarding the future: as in so many areas of life, the speed of progress has also quickened in the coatings industry. New binder systems, innovations in application technology, stricter environmental requirements and restrictive legislation (e.g. REACH), increasing pressure on cost effectiveness with simultaneous assurance of a high standard of quality, etc. seem to demand the impossible. For BYK-Chemie, such a situation represents both a challenge and a commitment at the same time.

And so, several years down the line, BYK-Chemie has taken a further step in the direction of controlled, but this time extremely flexible, polymerization – in the form of “controlled radical polymerization” – CRP for short. This process effectively provides polymer chemists with a tool kit from which they can select the appropriate methods and instruments for obtaining the desired polymer structure. Thus CRP involves working with a broad palette of monomers, whose sequence can be designed in such a way that the end result is a definite structure that conventional methods could only produce with considerable time, effort and materials, if at all.

Management:
Dr. Roland Peter (Chairman)
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Even if this sounds unspectacular, completely new horizons are opened up thanks to CRP. Properties that so far have been considered barely reconcilable can now be produced in an additive. For example, the criteria when it came to developing the new DISPERBYK®-2010 were as follows:

A wetting and dispersing additive was sought for aqueous systems which has hydrophobic properties at the same time, thus preserving the resistance of the coating to water. In addition, the additive must not only comply with high quality standards, but also be exceedingly economical.

The solution: DISPERBYK®-2010, a new type of wetting and dispersing additive, which combines these apparent extremes, has been polymerized on the basis of CRP and now works in waterborne systems, without compromising the coating's resistance to water, but rather achieving exceptional stability, color strength and gloss, while remaining very good value for money.

Or there's DISPERBYK®-2020. Because of its narrow molecular weight distribution, this additive is most compatible with a wide variety of binder systems. The high solid content makes for extremely economical application in solvent-borne systems. In addition to exceptional stabilization of inorganic and organic pigments, very good gloss and low mill base viscosity, require a high level of cost effectiveness.

DISPERBYK®-2010 and DISPERBYK®-2020 represent just the beginning of a new generation of additives, providing answers to challenges the coating industry is likely to face in the future.

About BYK-Chemie:

BYK-Chemie is one of the world's leading suppliers of additives used in the coatings, inks, and plastics industry.

Approximately 85 % of our sales are generated by foreign countries. Our major export markets are Europe, the United States and the Far East.

Additives are used by processing industries in the production of coatings, inks, and plastics. In very small quantities, BYK-Chemie additives simplify manufacturing processes, and significantly improve the quality of finished goods, such as motor vehicles and furniture. BYK-Chemie is a member of ALTANA Chemie AG, Wesel. ALTANA Chemie develops and produces high quality, innovative products in the sector of specialty chemicals.

BYK-Chemie has been producing additives since 1962 in Wesel. Today it employs around 990 people worldwide, 25 % of whom work in research and development departments or technical laboratories.

For inquiries:

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