Market Overview

- Coating dispersants function to improve the dispersion and increase the efficiency of paint and coating formulation. The coating dispersants compatible with special effect pigments have been identified as a separate class of special effect additives for paints and coatings. The dispersants can be used with the special effect pigments like pearlescent mica and metallic pigments. Most of these pigments require stabilizing to provide good brilliance in terms of colour and to improve the flop index. Polymeric dispersants help to stabilize the special effect particles and prevent sedimentation in liquid coatings. The coating dispersants provide better dispersion and better particle orientation.
- The coating dispersants can help to get the most out of the pigments and achieve the best colour. Coating dispersants work in combination with the existing pigments. They improve their performance, colour strength, transparency, coating gloss and make their
- dispersion easier.
- Additionally, these products are used to improve the productivity. These products are used to increase the concentration of pigments at the milling stage and they have a direct impact on the volume of coatings produced from the millbase.
- The coating dispersant market is a relatively small market and takes about x per cent of the total European coating dispersant market, which includes the dispersants for the traditional organic and inorganic pigments.
- By the action mechanism and product type, the dispersants can be segmented into:
  - polymeric dispersants
  - surfactants

Market Overview (Contd…)

- The coating dispersants comprise the following chemicals groups:
  - acrylics
  - polyethers
  - fatty acids
  - others such as polyurethanes and alkoxylates
- When producing these types of coating dispersants, it is important to get the right functional groups on the polymer that will be absorbed by the types of surfaces of these effect pigments. Therefore, these dispersants have to be absorbed into the surfaces of these usually inorganic particles. The dispersants are used to treat not only the mica-based or metal-based surfaces but also the inorganic particles attached to these pigments such as iron oxides, titanium oxides.

Polyethers

- Polyether ensures the proper wetting and stabilisation of organic and inorganic pigments.
- Polyethers are particularly suitable for pigment concentrates. Polyether dispersants are regarded as UNIVERSAL dispersants suitable for the wide range of pigments.
- The leading type of application is with iron oxide coated mica-based pigments and aluminium-based pigments.
- The dispersants can be applied for the production of all types of coatings. The dispersants can be applied for both water-based and solvent-based applications.
- Polyethers are surfactants which help to disperse the special effect pigments. In some cases when the compound is of higher molecular weight they are referred to polymeric dispersants.

Market Overview (Contd…)

Polyacrylates

- The polyacrylates product range consists of various types of acrylics, methacrylates and acrylic co-polymers.
- The acrylic dispersants function by the absorption of anchoring groups and sometimes help in orientation of the special effect pigments, specifically metallic pigments. Acrylates can function as polymeric and surfactant types of dispersants. If the dispersants are damaged in the paint mill, then they can be used in the form of surfactants or wetting agents.

Fatty Acids

- Fatty acid esters provide excellent dispersability and allow larger amounts of pigments to be loaded into the paint mill base.
- The fatty acids applied for the production of polymeric dispersants have from xx to xx carbon atoms.
- The tall oil fatty acids are widely applied for the production of fatty acid containing dispersants.
- The tall oil fatty acids contain a mixture of stearic, oleic and linolenic acids and are utilised for manufacturing fatty acids polyamides.
- Fatty amines are universal pigment dispersants of the surfactant-types of dispersants.
- The dispersants which react with isocyanate groups are examples of polymeric dispersants with applied fatty acids of x to xx carbon moieties. They provide improved hydrolytic stability and minimise pigment leaching in the paint formulation.

Market Overview (Contd…)

- The rest of dispersants market is represented by alkoxylates and polyurethanes, which can be applied with special effect pigments but are considered to be not so effective as acrylates or polyethers. Alkoxylate materials are of lower prices than the rest of the coating dispersants.
- The market can be segmented by the end-user application into the coating dispersants for:
  - automotive coatings: OEM and refinish
  - industrial coatings: coil coatings and marine coatings, aerospace coatings and general industrial
  - decorative coatings
- The market can be segmented into the coating additives for water-borne and solvent-borne systems.
- The low VOC directive 1999/EU/13 legislation drives the growth towards water-based coatings and the new developments in the pigment market requires the introduction and upgrading of new types of dispersants.

Market Dynamics

Market Drivers

Special Effect Coating Dispersants Market: Market Drivers Ranked In Order of Impact (Europe), 2009-2015

Rank	Driver	1 - 2 Years	3 - 4 Years	5 - 7 Years
1	Introduction of coating dispersants enables cost reductions for paint formulators			High
2x	Growing demand for special effect pigments means higher demand for special effect dispersants			High
3	Technological developments increase the coating dispersant quality			High

Source: Frost & Sullivan

Market Dynamics (Contd…)

Introduction of Coating Dispersants Enables Cost Reductions for Paint Formulators

- The introduction of coating dispersants for special effect pigments allows the paint formulators to achieve greater cost efficiencies. The addition of special effect dispersants in the coatings and paints formulations means not just better dispersion of pigments. The better suspension and dispersion of pigments allows them to be applied in less quantities for the same special effect thus reducing the ingredient costs. The application of coating dispersants allows the use of less expensive special effect pigments. If the pigment is less expensive than the resin, the paint and coating manufacturers can put more pigments into the systems.
- Paint and coating manufacturers can get operational efficiencies using these types of additives and this leads to the growing demand for coating dispersants.

Growing Demand for Special Effect Pigments Means Higher Demand for Special Effect Dispersants

- The market for special effect pigments is growing, and therefore, the market for the dispersants is growing. There has not been high growth in the market for metallic pigments but we see the growth for pearlescent pigments. The market segments are driven by fashion.