Melamine

Melamine is an organic compound that is often combined with formaldehyde to produce melamine resin, a synthetic polymer which is fire resistant and heat tolerant. Melamine resin is a very versatile material with a highly stable structure. Uses for melamine include whiteboard, floor tiles, kitchenware, fire retardant fabrics, and commercial filters. Melamine can be easily molded while warm, but will set into a fixed form. This property makes it ideally suited to certain industrial applications.

Melamine resin is manufactured by mixing melamine with formaldehyde, and sometimes urea, under heat and pressure. The substances begin to polymerize and are forced into a mold which will create the desired shape. Under pressure, melamine releases water, which could make the plastic unstable if it is not removed. The materials finish polymerizing and create a finished product, melamine resin.

Melamine resin is known as a thermoset plastic, because the plastic is fixed after molding. If exposed to enough heat, melamine will decompose. For this reason, melamine dishware should not be exposed to high temperatures like those in the oven and microwave. The plastic is able to withstand higher temperatures than other plastics, however. Because it is a thermoset plastic, melamine resin is difficult to recycle.

Melamine is stable, when stored under normal warehouse conditions. Although not particularly hygroscopic, powdered melamine must still be protected from wetting because, like most powders, it will form lump over extended storage period.

The use of melamine as fertilizer for crops had been envisaged during the '50s and '60s because of its high nitrogen content (2/3). However melamine is much more expensive to produce than other common nitrogen fertilizers, such as urea. To be effective as a fertilizer, it is essential that the plant nutrients are released or made available in a manner that matches the needs of the growing crop. The nitrogen mineralization process for melamine is extremely slow, making this product both economically and scientifically impractical for use as a fertilizer.

New project proposal under implementation In India

Company: Gujarat State Fertilisers & Chemicals Ltd.,(GSFC)

Capacity: 40000 metric tonne per annum

Project cost: Around Rs.1000 crore

Location: Vadodara,Gujarat

The contract has been signed for supply of knowhow, basic engineering and proprietary equipment with M/s. Casale, Switzerland. Project is planned to be operational in 2nd quarter of 2017-18.

To check adulteration in milk and milk products, the Food Safety and Standards Authority of India (FSSAI) has notified the maximum permissible level of the contaminant — melamine —in dairy products.

According to the notification, FSSAI has imposed a permissible limit of 1 mg of melamine in every kg of powdered infant formula, 0.15 mg a kg in liquid infant formula and 2.5 mg a kg in other foods. This has been introduced in the Food Safety and Standards (Contaminants, Toxins & Residues) Amendments Regulations 2015.

Global scenario

Global production / demand (Period:2015):1.3 million metric tonne .China is the largest single participant in the melamine market, accounting for half of world consumption. Melamine capacity in China was 2.40 million metric tonne per annum in 2014, around 70% of the world total.

China has around 29 melamine producers. Europe is the second largest melamine market, accounting for nearly 25% of world consumption. United States accounts for only about 4 to 5% of global melamine consumption.

Melamine consumption structure consists of 50% laminates, followed by adhesives and resins for wood.

The demand for melamine is likely to go up in tune with the performance of the laminate / plywood/ particle board industry, which in turn would increase in tune with the growth of the construction / furniture industry . During the next few years, global melamine consumption will grow at rate of about 4% per year, driven by China‘s growth and increases in other regions such as other Asian countries (not including Japan), Central and Eastern Europe, and the Middle East.

Annual growth in Central and Eastern Europe is expected to be 3 to 4%, largely the result of increased production of laminates and wood adhesives.

Consumption growth in Western Europe is forecast at more modest rate of 1 to 2% per year. Other Asian countries (excluding Japan) are expected to show good consumption growth at an average annual rate of 4%.

For more details:

NIIR PROJECT CONSULTANCY SERVICES offers consultancy on various industrial and profitable projects with complete details of pre-feasibility, market survey, capital requirement, rate of return and breakeven point. The detailed project profile reports cover all the aspects of business, from analysing the market, confirming availability of various necessities such as plant & machinery, raw materials to forecasting the financial requirements. For more details send us your inquiry on info@niir.org