News Release

BASF plastic additives increase roof durability, contributes to energy savings in China

- **Chimassorb® 2020 stabilizer package in TPO roofing membranes provides long-lasting protection against harsh weather conditions**
- **Roofing membranes made of TPO offer energy savings**
- **Concentrations can be adjusted to meet the requirements of different regions**

Hong Kong – October 31, 2017 – BASF's plastic additive Chimassorb® 2020 has been used by Oriental YuHong, a manufacturer of thermoplastic polyolefin (TPO) membranes, as a stabilizer in waterproofing materials for the roofing system. These have been applied in several commercial buildings in China. The stabilizer package helps protect the TPO membranes, hence the roofs, from wear and tear as well as degradation from extreme heat and light.

A roof must withstand unpredictable and harsh weather conditions: extreme heat, high winds, rain, sleet, hail, heavy snow and drastic temperature changes. Surviving constant exposure to the elements is rough and the roof must be just as tough.

TPO roofing membranes usually contain a process stabilizer to protect the membrane during extrusion or calendering, and a UV stabilizer and a thermal stabilizer to protect the membrane from heat and light degradation. Without this, the membrane would crack and cause leaks in the roofs. "TPO membranes degrade rapidly if formulated without UV stabilizers. To protect the membranes, BASF

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Media Contact

Ian deSouza
Phone: +852 2731 4816
ian.desouza@basf.com

BASF East Asia Regional Headquarters Ltd.,
45/F Jardine House,
1 Connaught Place,
Central, Hong Kong
Tel: +852 2731 0111
Fax: +852 2734 9648
www.basf.com/hk

offers qualified processing and long-term stabilizer packages, which have all been rigorously tested at our lab in Shanghai," said Hermann Althoff, Senior Vice President, of BASF's Performance Chemicals unit in Asia Pacific. The tests simulate extreme heat and weathering conditions through oven aging and artificial weathering. The results show that TPO roofing membranes produced with BASF's polymer formulation and stabilization can perform in some of the most extreme climate conditions and meet current roofing and waterproofing standards.

"With a stabilization technology based on Chimassorb 2020, it was possible for us to fulfill the new ASTM D6878 standard for TPO roofing formulations. The standard has been revised to address concerns of prolonged exposure in extreme heat climates," says George Liu, Technology R&D Department Manager of Oriental YuHong TPO roofing division. "Our aim is to provide customers with more durable waterproof products and better installation service."

Another benefit is that TPO roofs are 100% recyclable. These roofs reduce carbon footprints and are environment-friendly. Recycling of TPO membranes prevents their accumulation in landfills and helps building owners save money in waste removal.

TPO roofing membranes are highly regarded for their UV reflectivity which contributes to energy savings. Studies show that the surface temperature of a light-colored roof is much lower than a darker one. The cooler the building, the less air conditioning is required, and therefore, less energy is consumed.

BASF is able to adjust the concentrations of its dosage of its plastic additives to meet the requirements of the different regions. Developed with the German Space Agency DLR, the global UV radiation mapping tool enables BASF to improve the lifetime prediction of plastics in a given environment and thus to reduce the risk of failures by anticipating climatic conditions. With it, customers are able to protect their plastics by selecting the right robust stabilization system and optimizing its loading level.

About BASF Plastic Additives

BASF is a leading supplier, manufacturer and innovation partner of plastic additives. Its comprehensive and innovative product portfolio includes stabilizers which provide ease in processing, heat and light resistance to a variety of polymers and applications including molded articles, films, fibers, sheets and extruded profiles. More information about plastic additives: www.plasticadditives.basf.com.

About BASF

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