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News Release

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ADEKA CORPORATION

Novel Clarifier for Polypropylene embodies Paradigm Shift in the Polymer Industry

- Clarified polypropylene with TRANSPAREX™ contributes to expanding the possibilities of plastics and a sustainable society by reducing environmental impacts such as the reduction of carbon footprint and mono-materialization for recycling -

ADEKA CORPORATION (President and Chief Executive Officer, Representative Director: Hidetaka Shirozume, Headquarters: Arakawa-ku, Tokyo, Japan) has just launched an innovative clarifier for polypropylene with a new brand name, "TRANSPAREX™" (product name: "ADK TRANSPAREX™ CA Series"), and has started marketing mainly in North America and Asia. ADK TRANSPAREX™ CA Series is expected to replace other clarifiers for polypropylene and, additionally, allow for the expansion of PP into select applications using transparent polymers such as PS, PET, PC, etc. With the expansion of clarified polypropylene market, TRANSPAREX™ will realize over 30 billion Japanese Yen to ADEKA's clarifier business and the top share in the global clarifier market by 2030.

■ Overview of the Clarifier *TRANSPAREX*

<Point 1> Achieved transparency with *TRANSPAREX*[*1]

ADK TRANSPAREX™ CA Series embodies the ultimate transparency of polypropylene articles which are realized with significant lower clarifier dosage. The clarified polypropylene with TRANSPAREX™ is applicable for current applications including microwaveable transparent food containers, chemically resistant medical devices, and cosmetic packaging, etc., with best-in-class clarity and excellent physical and mechanical properties.



Test piece (1 mm) made of polypropylene with 0.1% TRANSPAREX



Polypropylene test piece (1 mm) without the addition of a clarifier

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<Point 2> Enabling to replace other transparent polymers

Polypropylene is known as a polymer with lower transparency than amorphous transparent polymers such as PS, PET, and PC. However, with compounding TRANSPAREX™ into polypropylene, the number of crystal nuclei generation increases dramatically, and then the size of spherulites are constrained physically thereby achieving transparency comparable to these amorphous polymers. In addition. polypropylene is a polymer that can be used to reduce carbon footprints and provide functional benefits such as heat resistance and chemical resistance. By realizing the ultimate PP transparency with TRANSPAREX™, the shifting from select amorphous transparent polymers to polypropylene will be achieved and accelerated.

*1 The transparency of polypropylene is measured using 1 mm thick test pieces (Haze value). According to our tests, the highest performance to date on the market is a Haze value of 3.2. Polypropylene with TRANSPAREX has a Haze value of ≤2.0. The lower the Haze value, the more transparent the material. (As of November 1, 2024, according to our research)

Supplementary note 1 : Examples of applications (polypropylene using *TRANSPAREX*)

*Photos are for illustration purposes only.

Food containers[*2], medical devices (syringes, face guards), cosmetics, alcohol beverage bottles, automobile parts, home appliances, etc.






*2 TRANSPAREX is a highly safe polymer additive that has been approved by the U.S. FDA as a food contact material (Approved for a wide range of temperature conditions, A through H and J).

Supplementary note 2 : How clarified polypropylene materialized

Polypropylene is a translucent polymer by nature. By adding a clarifier to polypropylene, it is possible to control the nucleation process during crystallization, thereby reducing the size of polypropylene spherulites of under visible light wavelength. The polypropylene appears transparent because visible light passes through without being scattered due to the much smaller polypropylene crystal structure.

ADEKA has succeeded in developing TRANSPAREX™ by designing a new molecular structure that can control the hierarchical microstructure of polypropylene crystal to a finer level than current clarifier technology.

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Supplementary note 3 : ADEKA's Polymer Additives business

ADEKA began selling *ADK CIZER*, a plasticizer for Poly(vinyl chloride) that is essential for the practical use of synthetic polymer in 1954, in response to the increased demand for Poly(vinyl chloride) during the period of rapid economic growth in Japan. We are a comprehensive manufacturer of polymer additives that offers a diverse product lineup ranging from general-purpose to high-performance products for various polymers, including commodity and engineering plastics. We have the production, development and sales bases around the world, and we are one of the biggest global polymer additive producers. In 2020, we have launched the environmentally friendly polymer additive, *ADK CYCLOAID*, and we are working to promote the wider use of recycled plastics and bioplastics.

■ Contacts

ADEKA CORPORATION

Publicity & Administration group , Legal Affairs & Publicity Department

E-mail: somu@adeka.co.jp

ADEKA KOREA
Sales 1Dept. 1Group
E-mail: 411@adkk.co.kr