

January 25, 2019

Kristina Rebrovic
Resinex
Ravago Group
Moerenstraat 85 A
2370 Arendonk
Belgium

Dear Ms Rebrovic,

Composting is a method of waste disposal that allows organic materials to be recycled into a product that can be used as a valuable soil amendment. EN 13432 requires testing for eco toxicity, aerobic biodegradation, and disintegration. NatureWorks LLC has carried out aerobic biodegradation and ecotoxicity testing in accordance to EU guidelines at an independent testing laboratory (OWS) and found them to pass all required tests. Due to the large number of production and downstream processes which can have an impact on the final performance it is not possible to perform disintegration testing. Variables that may impact performance and therefore also disintegration include but are not limited to geometry, additives, surface treatments and lubricants as well as final fabric/article physical construction.

Ingeo products listed below are certified as “Compostable Additives” by DIN CERTCO and can be used up to 100%.

Ingeo™ biopolymer Grades Covered
Ingeo™ biopolymer 2500HP, 3100HP, 3260HP, 6060D, 6100D, 6201D, 6202D, 6204D, 6251D, 6252D, 6260D, 6300D, 6302D, 6361D, 6400D, 6751D, and 6752D

Under the certification program, adopted by DIN CERTCO, materials and products for which an application for certification has been submitted and approved a license will be granted to mark such materials or products with the IBAW Logo. A customer of NatureWorks LLC cannot use the IBAW logo on their products unless they have applied and been granted certification for their material(s) or product(s). The certification from DIN CERTCO is unique to NatureWorks Ingeo products in their raw resin form and is not applicable to Ingeo based materials or end products. You can verify NatureWorks DIN CERTCO certification here: <http://www.dincertco.tuv.com/registrations/60078158?locale=en>

Ingeo™ biopolymer is made primarily of polylactic acid, a repeating chain of lactic acid, which undergoes a 2-step degradation process. First, the moisture and heat in the compost pile attack the Ingeo™ biopolymer polymer chains and split them apart, creating smaller polymers, and finally, lactic acid. Microorganisms in compost and soil consume the smaller polymer fragments and lactic acid as nutrients. Since lactic acid is widely found in nature, a large number of organisms metabolize lactic acid. The end result of the process is carbon dioxide, water and also humus, a soil nutrient. Ingeo™ biopolymer reacts with water, the rate of this chemical hydrolysis increases with temperature. This degradation process is temperature and humidity dependent.

Ingeo™ - naturally advanced materials



This data is not intended to relieve you from the requirement to test your compostable product. We recommend you examine the regulation and your responsibilities as a manufacturer to ensure your product comply with any limitations. Any addition of additives or colorants to NatureWorks LLC resin, after the resin leaves our factory gate, will have to pass all required testing to meet compostability standards.

Best Regards,



William A. Suehr
COO
NatureWorks LLC
c.c. File

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