



KEYPLAST Colorants for PLA

The environmental impact of consumer and industrial goods has become a global concern. We are consciously looking for ways to decrease our dependence on oil and reduce waste. Manufacturers are also looking for ways to produce products that rely less on petroleum based materials and are also recyclable or compostable. One such material is the biopolymer called Polylactic Acid (PLA).

PLA is one of several commercial biopolymers finding its way into the marketplace. Made from 100% renewable resources, PLA is being used to make beverage bottles, thermoformable packaging, extruded films, and even fibers for textiles. The added benefit from this unique polymer is that it can be recycled or is completely compostable¹.

The question remains as to what types of colorants are compatible with PLA and what happens to them during composting? Would the colorants also breakdown in the process?

A limited composting study² of how certain colorants would respond under such conditions was done by Keystone Aniline Corporation. Under laboratory conditions, a number of composting mixtures were prepared, some with pigments and some with dyes. The results indicate that under the proper conditions dyes, as well as some pigments, do lose mass. Additional tests³ were also done to determine if dyes would migrate out of the PLA and the results were quite favorable. For more information on these studies, please contact your Keystone Aniline sales representative.

Keystone Aniline Corporation suggests the following colorants for testing and suitability for use in PLA biopolymers:

DYES

Name	Code
■ Keyplast Blue B	206-035-50
■ Keyplast Blue KR	206-104-50
■ Keyplast Red A	606-024-50
■ Keyplast Red AA-TL	606-111-51
■ Keyplast Red AG	606-135-51
■ Keyplast FL Red 5B	608-041-50
■ Keyplast Violet IRS	706-013-50
■ Keyplast Yellow 2GH	806-072-51
■ Keyplast Yellow 3G	806-093-50

PIGMENTS

Name	Code
■ MPC Channel Black	110-007-60
■ Keyplast Blue KG	210-015-80
■ Keyplast Red KPP	610-254-55
■ Keyplast Yellow 3KLTN	810-110-50

1. NatureWorks LLC Website: Products & Applications: Fact or Fiction? <http://www.natureworkslc.com/product-and-applications.aspx> (accessed Aug. 17, 2007).
2. Steele, C.; Treitman, M. Compostable Colorants for Bio-Plastics. In SPE CAD RETEC 2008, Dearborn, MI, September 21-23, 2008 [CD-ROM].
3. Provenzale, G. Lab Report KAC 011GP PLA Resin, Keystone Aniline Corporation, Chicago, IL, November 27, 2006.

DISCLAIMER: These data were obtained by testing according to our methods, with any necessary test deviations. Other test methods may give different results. Incoming evaluations, by the customer is therefore unconditionally recommended. The use and application of our colorants and information included is without any warranty, whether expressed or implied, verbal or written. No statements of recommendation contained in this product literature is to be construed as inducement to infringe on any relevant patent now or hereafter in existence.

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