



Product Information

Bayferrox® Synthetic Iron Oxide Pigments

Specification Requirements for Coloring Concrete Products

Colored concrete and precast concrete products have experienced tremendous growth rates around the world. The most widely used pigments for coloring these products are synthetic iron oxides due to their outstanding price/performance ratio. At low dosages, they can turn gray concrete into a wide range of earth tone colors, which show virtually no fading even after years of exposure.

Bayferrox synthetic iron oxide pigments are made by LANXESS Corporation, and each of our manufacturing sites has ISO certification. The pigments must meet stringent color and quality specification parameters set forth by LANXESS and the American Society for the Testing of Materials (ASTM) designation C979. These specifications are closely monitored at the Bayferrox pigments production facilities in Germany and Brazil, and in our quality assurance laboratories. A full range of high quality iron oxide pigments (yellows, reds, blacks, and browns) is produced for various applications. Bayferrox pigments meet the following requirements of ASTM Designation C979, *Standard Specification for Pigments for Integrally Colored Concrete*:

Test	Test Method
1. Water Wettability	ASTM C979 7.1
2. Alkali Resistance	ASTM C979 7.2
3. Total Sulfates	ASTM C979 7.3
4. Water Solubility	ASTM C979 7.4
5. Atmospheric Curing Stability	ASTM C979 7.5
6. Light Resistance	ASTM C979 7.6
7. Effects on Concrete	
A. 28-days Compressive Strength	ASTM C979 7.7.5
B. Initial or Final Set	ASTM C979 7.7.3
8. Color Match of Shipment	ASTM C979 7.8

The chart on the reverse side of this sheet lists the results of data that has been collected on the use of Bayferrox pigments in integrally colored concrete using the ASTM test methods.

Bayferrox pigments have proven to be an excellent choice for coloring concrete products such as:

Concrete blocks and bricks	Segmental retaining wall units
Paving stones / interlocking pavers	Grout
Roof tiles	Colored mortar cement
Patio slabs	Stucco
Precast architectural concrete	Ready-mixed concrete
Other precast products	Fiber cement products

Shade of Bayferrox pigments	Yellows			Reds			Blacks			Browns		
Test	Straight Pigment	Loading 0.5%	Loading 6.0%	Straight Pigment	Loading 0.5%	Loading 6.0%	Straight Pigment	Loading 0.5%	Loading 6.0%	Straight Pigment	Loading 0.5%	Loading 6.0%
Water-Wettability (ASTM C979 7.1)	P	N/A	N/A	P	N/A	N/A	P	N/A	N/A	P	N/A	N/A
Alkali Resistance (ASTM C979 7.2)	R	N/A	N/A	R	N/A	N/A	R	N/A	N/A	R	N/A	N/A
Total Sulfates (ASTM C979 7.3)	0.3-0.7%	N/A	N/A	0.05-0.13%	N/A	N/A	0.2-0.7%	N/A	N/A	0.3-0.7%	N/A	N/A
Water Solubility (ASTM C979 7.4)	0.15-0.35%	N/A	N/A	0.2-0.4%	N/A	N/A	0.3-0.6%	N/A	N/A	0.3-0.6%	N/A	N/A
Atmospheric Curing Stability (ASTM C979 7.5)	N/A	R	R	N/A	R	R	N/A	R	R	N/A	R	R
Light Resistance (ASTM C979 7.6)	N/A	R	R	N/A	R	R	N/A	R	R	N/A	R	R
Effect on Setting of Concrete (ASTM C979 7.7.3)	N/A	N/A	i* -15 f* +5	N/A	N/A	i* -25 f* -10	N/A	N/A	i* +5 f* +25	N/A	N/A	i* -25 f* +25
Effect on Compressive Strength (ASTM C979 7.7.5)	N/A	N/A	102%**	N/A	N/A	106.5%	N/A	N/A	106%	N/A	N/A	106.5%
Color Match of Shipment (ASTM C979 7.8)	ΔE* <1.0	N/A	N/A	ΔE* <1.0	N/A	N/A	ΔE* <1.5	N/A	N/A	ΔE* <1.5	N/A	N/A

LEGEND: P = Passed
R = Resistant
 ΔE^* = Color difference according to CIELAB (see ASTM D2244)

*deviation in minutes
i = initial f = final
**Control (unpigmented) = 100%
N/A – Not Applicable

Standard = -60/+90

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Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS products mentioned in this publication. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper

use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your LANXESS Corporation representative or contact LANXESS's Product Safety and Regulatory Affairs Dept., Pittsburgh, PA.

Note: The information contained in this bulletin is current as of January 2007. Please contact LANXESS Corporation to determine if this publication has been revised.

LANXESS Corporation
111 RIDC Park West Drive
Pittsburgh, PA 15275
1-800-LANXESS (526-9377)

www.Bayferrox.com
www.US.LANXESS.com