



See The Difference We Make

The Broadest Selection of Pigments Worldwide

May 2021 Newsletter: See the Difference We Make

Check out this month's issue to learn about the following:

- 7751: PY.151 with the Best Weatherfastness
- Bismuth Vanadate Pigments for High-Temperature Plastics or Powder Coatings
- ERP Update: New Order Confirmation Document
- Cybersecurity Awareness Update



See The Difference We Make

The Broadest Selection of Pigments Worldwide

7751: Newest PY.151 with Best Weatherfastness

7751 is a high-performance green shade yellow pigment, designed to have improved weatherfastness and higher tint strength than pre-existing Pigment Yellow 151 grades.

It is recommended for applications such as industrial, powder, and solvent-based architectural coatings.

It has good gloss retention, tinctorial strength and enhanced outdoor durability.

It is considered a coloristic match that offers better weather resistance and the highest chroma compared to competitive grade(s) seen in the market.

DCL Pigments for Coatings
See The Difference We Make

7751
Benzimidazolone Yellow 151
Pigment Yellow 151

High performance, green-shade yellow pigment

PY151 grade with improved weatherfastness and higher tint strength

Good gloss retention

Enhanced outdoor durability versus traditional PY151's

Applications

- Architectural Water & Universal
- Architectural Solvent
- Industrial Fast Air Drying
- Industrial Oven-Cured
- Coil Coatings
- Automotive Coatings
- Powder Coatings

RECOMMENDATION: Freely Available Limited Use Not Recommended

ISO 9001 ISO 14001 pigments.com ka.eur.pigments.com

Want to learn more? Check out our Product Video on YouTube!





The Broadest Selection of Pigments Worldwide

Bismuth Vanadate Pigments for High-Temperature Plastics or Powder Coatings

Introduction

Bismuth Vanadate (BV) pigments (C.I. Pigment Yellow 184) have increased in importance since their initial development in the 1980's, for use in the paints, coatings and plastics markets. These bright yellow, highly saturated pigments are characterized by their outstanding opacity/hiding power, chemical resistance, excellent weathering, durability, and heat stability.



What is Thermostability?

Thermostability of pigments in general and especially of BV pigment is typically described as “a change in color when processing at elevated temperatures and in the presence of organic materials.” These high temperature processes include extrusion, injection molding, coil coating and powder coating all of which involve the coloration of organic resins. However, from a physical and chemical point of view, *the description “thermostability” for BV is incorrect.*

BV is an inorganic compound which can remain, as a powder, in an oven at temperatures up to 400°C (750 Fahrenheit) for several days without changing color. As BV is also a potential oxidant, it can chemically oxidize organic materials that come into direct contact with the pigment and therefore itself be reduced. This reduction of vanadium (+5) to lower oxidation states results in the color change to dirty green falsely described as thermostability. This can be simply illustrated by the oxidation stages of the vanadium in aqueous solution, as shown in **Image 1**.

Image 1. Oxidation States of Vanadium in Aqueous Solutions (Left to right +5 → +4 → +3 → +2)



Whilst BV's taken as powder pigment are stable up to temperatures of 400°C (750 Fahrenheit), when incorporated into an organic matrix (a polymer resin) at elevated temperatures (200°C to 320°C) a redox reaction can take place between the vanadium in BV and the organic material. Vanadium is reduced from a valency of +5 (yellow) to valency's of +4 (blue) à +3 (green) à +2 (violet). This results in a color shift from chromatic lemon yellow to a dull green color which is interpreted as reduced heat stability.



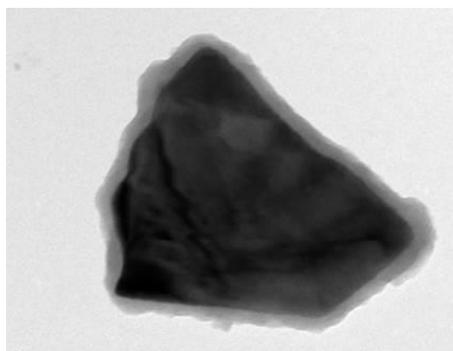
The Broadest Selection of Pigments Worldwide

See The Difference We Make

This only can happen, if the polymer resin can come into direct contact with the BV pigment crystals. A proven method to prevent BV to react with the polymer is to encapsulate with a dense layer of silicon dioxide, which acts as a spacer between the resin and pigment (See **Image 2**). Image 2 shows a transmission electron microscope picture. The dark area is the pigment surrounded with a thin gray area, which is the encapsulation.

Because BV pigments change color due to a redox reaction, not thermal decomposition, this explains why BV changes color at higher or lower temperatures depending on the resin it is coloring. Polyolefins are not easy to oxidize and therefore BV exhibits excellent heat stability in them, whereas polymers like polyamide are easier to oxidize and the same BV grade shows lower heat stability. Residual catalysts / intermediates in the polymers (mainly polyolefins) may also have a negative impact on the redox behavior and therefore discoloration of BV.

Image 2. Transmission electron microscope picture of an encapsulated BV crystal. The dark core is the pigment and the gray colored shell a dense layer of silicon dioxide.

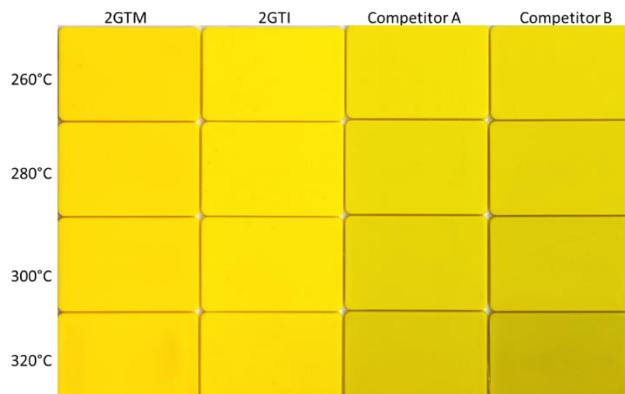


Heat Stability of our Pigments

DCL has thermostable BV pigments available with heat stability in the range of 260-300°C, for use in polyolefins, and >320°C for polyamides (as shown in Image 3.)

Image 3 clearly shows that DCL 2GTM and DCL 2GTI display far better heat resistance than either Competitor A or Competitor B, in polyamide.

Image 3. Heat stability in Polyamide (full shade@1%)





See The Difference We Make

The Broadest Selection of Pigments Worldwide

Interested in BV Pigments with high heat stability? Here are some of our recommended grades, based on the specific application.

Application	Product Code	Main Features & Benefits	Heat Stability
Polyolefins	2GLMA	“Go to” product for PO’s	275°C
Polyolefins	RMXA	Reddest shade, high strength & good hiding. Slightly greener than organic PY.138	270°C
Polyolefins	2GTA	Higher heat stability for PO – similar colour strength when compared to 2GLMA (marginally stronger)	285°C
Fibers	3GMX-SI	Excellent dispersibility for a BV	260°C
Polyamide/ Engineering polymers	2GTI	Made specifically for EPL. Does not contain Boric acid	>320°C in PA
Polyamide/ Engineering polymers	2GTM/2GTS	Made specifically for EPL. Contains Boric Acid	>320°C in PA

Contact us if you have any other questions!



ERP Update: New Order Confirmation Document

Last month we introduced the launch of our new ERP computer system. We would like to take this opportunity to introduce the Order Confirmation document which will be sent with each received order. The purpose of this document is to confirm order receipt and many important order details so that our customers are confident of clear communications and expectations. The new order confirmation document will be provided when we roll out our new ERP to US customers in a few months and by Q1 2022 for the remainder of our customers. On the accompanying "Sample" Order Confirmation document that we created, key information fields are highlighted and numbered for discussion.

- Customer Addresses - Numbers 2, 3 & 4.** The Order Confirmation will show three addresses for the customer. The customers Mailing Address (2), Physical Address where this delivery is to be made (3) and the address where the invoice is mailed (4).
- Dates - Numbers 1 & 7.** The Order Date (1) we received the customer's order and the expected Delivery Date (7) are clearly indicated on this document. Our new ERP has a sophisticated logistics module which calculates shipping times between the warehouse of the ordered product and the customer to time shipment releases. Our plan is to confirm an expected delivery date at the time an order is placed.
- Order & Product details -** On the order confirmation we will include the Customer Order Number (5), which is standard practice, as well as the Customer's Code (6) for our product. Many of our customers have established their own internal raw material codes corresponding to our branded product. In our new system, we will store customer aliases for our products and print them on the order confirmation as another step to improve communication in the order fulfillment process, especially with our customers outside of the US where this feature has not been available.
- Charges -** An estimate of any applicable charges (8) is summarized on the Order Confirmation with detail by order line in the body of the document. For customers in regions where VAT or HST is collected these charges will be shown in detail.



DCL Corporation (USA) LLC 304
 1 Blue Hill Plaza
 PO Box 1685
 Pearl River NY 10965
 United States
 845-507-5950
CustomerService@pigments.com

ORDER CONFIRMATION

Order number	Your ref 1	Your dt
0010000276		2021-May-12
Inv recipient	Our reference	Order date
CSAMPLE1	Frank Lavieri	2021-May-12

Customer		Payer	
CSAMPLE1		CSAMPLE1	
2. Customer address	SAMPLE CUSTOMER 1234 MAIN STREET WARWICK RI 02886 United States	3. Payer address	SAMPLE CUSTOMER 1234 MAIN STREET WARWICK RI 02886 United States
4. Delivery Address	SAMPLE CUSTOMER 1234 MAIN STREET WARWICK RI 02886 United States	Currency	Our sup no
Last printed	5. Your order no	USD US Dollars	
2021-May-12	XYZ123	Your VAT reg no	Our VAT reg no
Salesperson	Quotation no	Payment terms	
LLANE Larry Lane		60 days net	
Delivery terms	Delivery method		
Delivered Duty Paid YOUR DOCK	Road transport		

Line	Sf	Item number	Name	Quantity	U/M	7. Delivery date	Sales price	Discount amount	Amount
1		100027	2GLMA-DP25	3,306.94	LB	2021-Jun-01	21.91	0.00	72,454.98
		Customer's ord	XYZ123						
		Customer Item No	CUSTOMER ALIAS						
2		200481	2665-DC20	881.85	LB	2021-Jun-01	7.50	0.00	6,613.87
		Customer's ord	XYZ123						
		6. Customer Item No	CUSTOMER ALIAS						
				Chinese Tariff Surcharge	TARIFF				1,653.47
				USD Variable Fuel Surcharge	USDFSC				190.00

8. Charges		
Charges		1,843.47
Order total		80,912.32
Total	USD	80,912.32

Page 1 of 1

It is our expectation that our new Order Confirmation document will improve communication during the order fulfillment process and provide greater confidence for our customers.



The Broadest Selection of Pigments Worldwide

Cybersecurity Awareness: What to Know

With the recent increase in phishing and other cybersecurity attacks against infrastructure and manufacturing sector here are some items to look out for:



- Be wary of emails in your junk/spam folder
- Verify the email address of sender
- Do not send money to anyone
- Never click on hyperlinks in fishy emails
- Never enter sensitive information
- Use different passwords for everything
- Look for warning this is an external email

[Contact us if you have any questions!](#)



See The Difference We Make

The Broadest Selection of Pigments Worldwide

Your Sales Representatives

Please contact your regional sales representative for more information on the products advertised here and any others in our product range.

North America:

Jeff Babich, Sales Manager (jbabich@pigments.com)
Michele Claeson, Sales Manager (michele@pigments.com)
Rick Devore, Sales Manager (rick.devore@pigments.com)
Larry Lane, Sales Manager Southwestern USA (llane@pigments.com)
Mark Freshwater, VP Sales & Marketing Organic Pigments (mark@pigments.com)
Paul Holder, Sales Manager, Canada (pholder@pigments.com)
Suzanne Letrondo, Technical Sales Representative Specialty Coatings, Monteith (sletrondo@pigments.com)
Jon Morrison, Sales Manager (jmorrison@pigments.com)
Bob Neu, Business Development Manager (bneu@pigments.com)
Hani Sarhan, General Sales Manager (Canada) (hsarhan@pigments.com)

Europe:

Peter Baggen, Vice President Sales (pbaggen@pigments.com)
Andy Fenlon, Director of European Sales (Europe, Middle East & Africa) (afenlon@pigments.com)
Dominique Galy, Sales Manager, France, Spain & Portugal (dgaly@pigments.com)
Lieven Vandenberghe, European Coatings Industry, Coordination Manager (lvandenberghe@pigments.com)
Raimund Wilhelm, Sales Manager, DACH Region (rwillhelm@pigments.com)
Prakash Naik, UK, Global Procurement & Business Development (pnaik@pigments.com)
Laura Kenny, Sales Manager Dispersions (lkenny@pigments.com)
Phil Conway, Sales Manager, UK (pconway@pigments.com)
Cosimo Azzarito, Sales Manager, Italy, Key Account Manager Inks, EMEA (cazzarito@pigments.com)

Asia Pacific:

Patrick Chan, Regional Sales Director, Asia Pacific & LATAM (pchan@pigments.com)
Effendi Wijaya, Technical Sales Manager, Asia (ewijaya@pigments.com)
Yvonne Chang, Technical Sales Manager, Asia (ychang@pigments.com)

MEA:

Haytham Sayed, Business Development - Middle East & Africa (hsayed@pigments.com)

Latin America:

Michele Claeson, Sales Manager, Puerto Rico (michele@pigments.com)
Denis Rojas, Regional Sales Manager, North Latin America & Caribbean (drojas@pigments.com)
Zully Villalobos, Technical Sales Manager, Latin America (zvillalobos@pigments.com)

About DCL Corporation

DCL Corporation is a manufacturer and supplier of pigments for our customers in the coatings, plastics, printing ink and paper industries worldwide. Our extensive range of pigments is backed by technical expertise, our commitment to service excellence, continuous improvement, environmental, health, safety and social responsibility. Please visit www.pigments.com for more information on our product range.