

## UltraChrome D6 Black compared to Noritsu D701 Black

Paul Roark

Update – 3/19/2014

In response to my pointing out the apparent mistake in Epson's MSDS regarding the SureLab D3000 UltraChrome D6 black ink, the MSDS was, according to an e-mail today, changed to remove the claim that the black was a carbon black. The new MSDS sent to me contains the following description of the ink composition:

### Section 3 : Composition/information on ingredients

*Substance/Mixture : Mixture (ink composition)*

Ink Composition	CAS No.	% By Weight	Remark
Water	7732-18-5	70 - 75	none
Glycerols	56-81-5	5 - 10	none
Proprietary organic materials	-	5 - 10	none
Proprietary dyes and pigments	-	5 - 10	none
TEGBE	143-22-6	5 - 10	none

SDS T71010S

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Version 3.9 (USA)  
Release Date 3/18/14

Hopefully the copies on the web will also be corrected. It would be unfortunate if salespeople used the old MSDS's to misrepresent the character of the inkset.

My thanks to Epson for quickly responding to the issue.

Paul

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Epson's entry into the minilab "dry lab" inkjet field is the SureLab D3000. Although the inkset name "UltraChrome D6" suggests a relationship to the pigment inkset used in many of Epson's printers, the "D6" is presumably the hint that, in fact this is a dye-based inkset.<sup>1</sup> Dyes are used, probably, because they give a better image on glossy paper, with no gloss differential. Epson most often claims in its literature that the printer results in "archival" prints that will last for "generations" when properly displayed and stored. On the other hand, early information about the D3000 stated that its prints would have an expected display life of "over 80 years,"<sup>2</sup> roughly similar to Claria prints according to Wilhelm.

I have been using the Epson dyes made for the Noritsu dry labs for several years with very encouraging results. While not in the same league with carbon pigments in terms of archival image stability, the visual quality of the B&W dye image is unique and impressive in many ways.

Of most interest to me regarding the new Epson dry-lab printer and its UC D6 inkset was the D3000 black ink MSDS that indicated the black ink was a carbon black. See below.

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<sup>1</sup> See

<http://www.epson.com/alfresco/proimaging/products/SureLabDSeries/Epson%20SureLab%20D3000%20SRG%20v2.pdf> at p. 9: "Epson UltraChrome D6 Ink Technology - All-new six-color **dye-based ink technology** ... prints that will **last for generations** ..." (emphasis added).

<sup>2</sup>See

<http://www.armadillophoto.com/Documents/Epson/EPSON%20SureLab%20D3000%20Preview%20v9.pdf>



## Material Safety Data Sheet

### 1. Article and Corporate Identification

**Product:** Epson Ink Cartridge T71010S  
for use with Epson SureLab SL-D3000  
Printers

**Distributor:** Epson America, Inc.  
3840 Kilroy Airport Way  
Long Beach, CA 90806  
United States  
Tel: 562-276-1369  
Fax: 562-997-5799

### 2. Composition Information

*This is an aqueous ink formulation*

Ink Composition	CAS No.	% By Weight
Carbon Black	1333-86-4	<7%
Proprietary organic materials	-	10 -15%
Glycerols	-	5 -10%
Water	7732-18-5	balance

For comparison, see the Epson MSDSs for Claria and their typical UltraChrome PK, below:

**Safety Data Sheet**

**1. Article and Corporate Identification**

**Product:** Epson Ink Cartridge T079120 for use with Epson Stylus Photo 1400 Printers

**Distributor:** Epson America, Inc.  
3840 Kilroy Airport Way  
Long Beach, CA 90806  
United States  
Tel: 562-276-1369  
Fax: 562-997-5799

**2. Composition Information**

*This is an aqueous ink formulation*

Ink Composition	CAS No.	% By Weight
Proprietary dyes and pigments	-	<7%
Proprietary organic materials	-	10 -15%
Glycerols	-	5 -10%
Water	7732-18-5	balance

**Material Safety Data Sheet**

**1. Article and Corporate Identification**

**Product:** Epson Ink Cartridge T596100 for use with Epson Stylus Pro 7700, 7890, 7900, 9700, and 9900 Printer

**Distributor:** Epson America, Inc.  
3840 Kilroy Airport Way  
Long Beach, CA 90806  
United States  
TEL: 562-276-1369  
FAX: 562-997-5799

The EPSON T596100 Ink

**2. Composition Information**

*This is an aqueous ink formulation*

Ink Composition	CAS No.	% By Weight
Carbon Black	1333-86-4	<3%
Proprietary dyes and pigments	-	<1%
Proprietary organic materials	-	15 -20%
Glycerols	-	15 -20%
Water	7732-18-5	balance

In comparing the MSDS's, one thing that stands out is that the D6 black MSDS looks just like the Epson 1400 Claria black MSDS except that instead of saying "Proprietary dyes and pigments" it states "Carbon Black. Aside from the "Carbon Black," the D6 MSDS is un-like the 7900's UltraChrome PK MSDS.

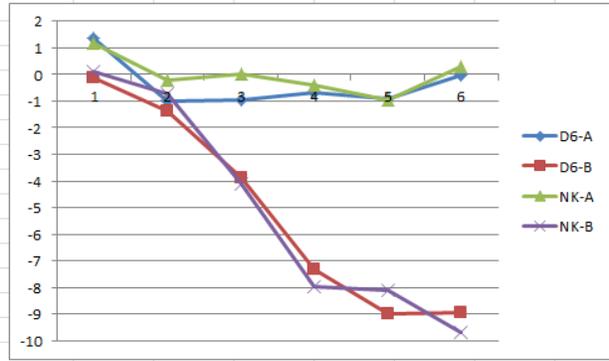
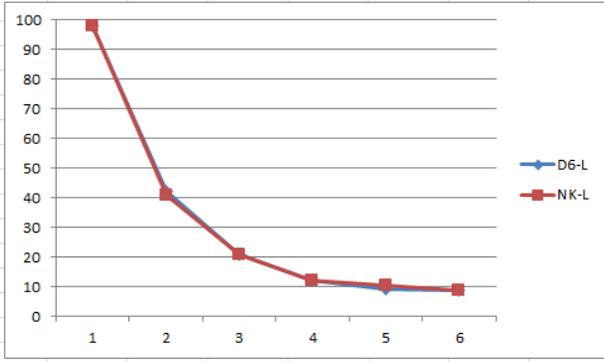
Is the D6 really a carbon black or a dye black?

Printing on glossy paper with a carbon black and color dyes with no gloss differential would be quite an achievement. No carbon pigment I've found any information on is nearly as small as the pores of a microporous glossy inkjet paper. As such, one would assume that the pigments would have to sit on top of the paper, causing the artifacts that always accompany pigments on glossy paper. Epson makes a major point in its literature that the D6 ink goes into the coating.

So, I obtained a sample of the new D6 black ink for making some test prints.

The results of my printing suggest that the UltraChrome D6 is the same as the Noritsu and Claria black dyes. I would be extremely surprised if it was a carbon black. The MSDS appears to be an error.

See the Lab L, A and B graphs for the D6 and Noritsu ("NK") black inks on Canson Baryta paper, below:



In test strips and images printed with both the D6 K and the Noritsu K, I can see no differences.

I expect these are essentially if not exactly the same inks.