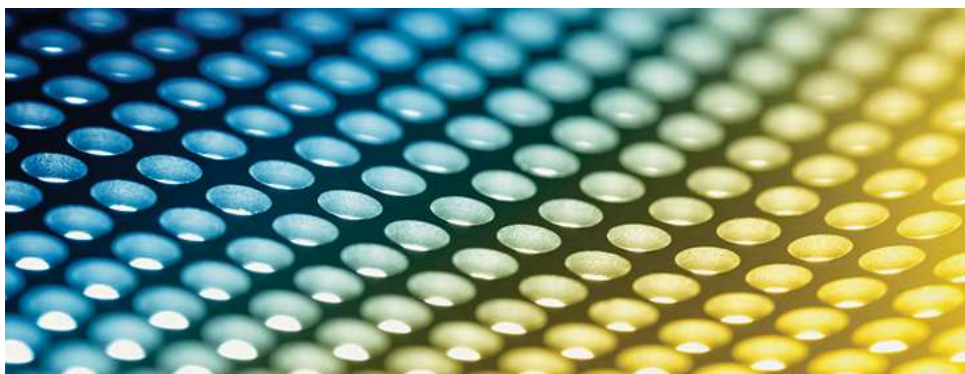


## SANODAL® DEEP BLACK HBL



**SANODAL DEEP BLACK HBL IS A HOMOGENEOUS DYE WHICH IS DISTINGUISHED BY OUTSTANDING FASTNESS TO LIGHT, WEATHER AND HEAT**

The main applications for Sanodal Deep Black HBL are:

- Dyeing aluminum parts for the electronic and the optics industry, thanks to its above-average heat stability
- Dyeing building elements for exterior architectural applications, thanks to its very good light and weather fastness
- Production of bluish-grey dyeings for interior applications

CLARIANT INTERNATIONAL LTD

Rothausstrasse 61  
4132 Muttenz  
Switzerland

BUSINESS UNIT PIGMENTS  
MARKETING AND SALES PLASTICS  
AND SPECIAL APPLICATIONS  
Phone +41 (0)61 469 79 45  
Fax +41 (0)61 469 75 40

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### 1. DYE-SPECIFIC DATA

Shade:	Neutral black
Appearance:	Black liquid
Chemical character:	Homogeneous azo metal complex dye
Density (20 °C):	1160 g/l
Solubility in water:	Unlimited in water
Storage stability:	5 years in closed containers between 5°C and 30°C
Ecotoxicological data:	See safety data sheet

## 2. APPLICATION CONDITIONS

Applicable amount, dyeing temperature and time

	CONCENTRATION g/l	DYEING TEMPERATURE °C	DYEING TIME min
Grey dyeings Standard layers (12 µm)	0.1-2	25-60	10-20
Deep black dyeings Standard layers (12 µm)	10	55-60	15-20
Sanodal layers (25 µm)	10	55-60	30-40

pH: 5.5 ± 0.5

Buffer: The dyebaths are preferably buffered with  
8 g/l sodium acetate trihydrate  
0.4 ml/l acetic acid, pH 5.6

Water quality: Preferably deionized; dyeing is also possible  
in tap water, but this can reduce the service life  
of the bath

Sealing: Preferably with Anodal® ASL  
(one or two stage)

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## 3. DYEBATH SETTING CONTROL

### 3.1 SETTING THE DYEBATH

Since the dye is already in dissolved form, setting and reinforcing the bath is very easy. The dye can be metered by weight or by volume.

### 3.2 CONTROLLING THE DYEBATH

As usual with the Sanodal system, it is recommended to control the dyebath regularly by determining its concentration and activity.

There are three possible ways of correction:

- Reinforcing the bath or
- Partial renewal of the bath or
- Complete renewal of the bath

## Reinforcing

The bath must be reinforced at latest when the actual concentration becomes 10 % lower than required. The bath should also be reinforced when its activity becomes reduced. In this case, it is necessary to add not only the amount of dye that has been consumed but also the amount required to offset the reduced activity of the dyebath, even though this can lead to exceeding the initial concentration at which the dyebath was set.

## Partial renewal

This is a variant of reinforcing. Partial renewal of the dyebath is recommended when the actual concentration becomes considerably greater than that at which the dyebath was set, owing to a high content of foreign ions, i.e. when a reduction of the bath activity is observed.

## 3.3 SERVICE LIFE OF THE DYEBATH

When properly controlled and maintained, Sanodal Deep Black HBL dyebaths can be used for months or even years without impairment of their functioning. However, the following points must be observed:

- The dyebath tank or vessel must be made of suitable materials (e.g. stainless steel, stoneware plastic)
- When the bath is not in use, its pH must be kept at 5.5- 6 by an occasional addition of acetic acid or dilute caustic soda solution, to keep “natural ageing” to a minimum
- Any foreign materials that may impair the bath’s functioning must be kept away as much as possible

The service life of the dyebath is reduced:

- When phosphate-containing water is used (e.g. chemically softened water)
- When foreign substances (e.g. sulphate and aluminum ions) are dragged in

## 3.4 PREVENTION OF MOULD FORMATION

We recommend the addition of a suitable antimicrobial product.

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## 4. FASTNESS AND OTHER PROPERTIES OF THE DYEINGS

### 4.1 LIGHT FASTNESS

Sanodal Deep Black HBL is distinguished by outstanding light fastness.

#### Black dyeings

LAYER THICKNESS	ISO 2135, BLUE SCALE RATING
12 µm	> 8
25 µm (Sanodal)	> 10

### 4.2 HEAT STABILITY

Dyed test specimens are very stable to heat. Black dyeings (12-15 µm) were tested for 2 h at 250 °C. No change was observed.

### 4.3 SEALING QUALITY

The sealing quality is not influenced by the dye.

### 4.4 CORROSION RESISTANCE

The results of the following test:

- Cass test (ISO 3770, 24 h) and
- Kesternich test (DIN 50018, SFW 2.0 S, 6 cycles)

are excellent and are not negatively influenced by the dye.

### 4.5 STRIPPABILITY OF THE DYEINGS

Unsealed dyeings are virtually unstrippable in diluted nitric or sulphuric acid. They can be stripped in nitric acid 10 % + potassium permanganate 5 %. After the treatment in potassium permanganate, neutralization must be carried out for 1-5 min in a sodium bisulphite 5 % solution.

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## 5. DISPOSAL OF SPEND DYE BATHS

Spent dye baths must be disposed of with Anodal WT-1 Liquid. The precipitation method is described in the technical information bulletin for Anodal WT-1 Liquid.

The table below gives the dosages necessary for precipitating Sanodal Deep Black HBL

PRECIPITATION METHOD	FeCl <sub>3</sub> , 40 % ml/g dye	ETCHING LYE ml/g dye	ANODAL WT-1 LIQUID ml/g dye	RESIDUAL DYE IN THE FILTRATE mg/l	CHROME CONTENT IN THE FILTRATE mg/l	DYE REDUCTION RELATED TO DYE BATH CONCENTRATION %
A	1.0	–	0.7	< 1	< 0.05	> 99.9
B	1.0	–	0.7	< 1	< 0.05	> 99.9
C	–	1.0	0.7	< 1	< 0.05	> 99.9

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