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# Lugafast® Dyes

## Reactive dyes for drum dyeing

Lugafast dyes are a new, innovative class of dyes. With these dyestuffs it is possible to achieve standards of wet fastness on chrome tanned as well as on chrome free leather, which are up to now unsurpassed.

With new process technology, Lugafast dyes form irreversible covalent bonds with the tanned collagen in the leather fibers. The dye is resistant to bleeding, even on leather that has been dyed to very deep shades, and its resistance to migration is excellent.

	Current technology in drum dyeing	Innovative process
<b>Dye</b>	Direct and acid dyes	Lugafast
<b>Fixation on collagen fibers</b>	Ionic bonds  Reversible (highly dependent on pH)	Covalent bonds  <b>Irreversible</b>
<b>Wet fastness (Grey scale)</b>	Difficult to obtain deep shades with sufficiently high wet fastness	Easily achieves grade 5 (does not stain multifiber test fabric)

Range	Chemistry	Shade
<b>Lugafast Black AN</b>	Metal free azo dye	Neutral black
<b>Lugafast Brown BB</b>	Homogeneous, metal complex dye	Yellowish dark brown
<b>Lugafast Brown BC</b>	Metal free azo dye	Slightly reddish medium brown
<b>Lugafast Red RR</b>	Metal free azo dye	Neutral red
<b>Lugafast Yellow GG</b>	Metal free azo dye	Greenish yellow

**IMDS classification**  
(automotive leather only)

Dye

## Storage



These products have a shelf life of at least one year if they are stored in their tightly sealed original packaging at temperatures between 0 °C and 50 °C. Bags should be tightly resealed each time material is taken from them, and their contents should be used up as soon as possible after they have been opened.

## Properties

Characteristic features of the **Lugafast dyes**:

- Homogeneous, anionic reactive dyes
- Excellent solubility in water, even at low pH-values
- They are excellent compatible when used in dye combinations and so a wide variety of shades is possible
- Excellent fastness properties, especially concerning wash-, perspiration and migration fastness
- Dedusted

**Lugafast dyes** have the following coloristic properties

- No tendency to bronze
- Good to excellent build-up
- High penetration
- Outstanding coverage of defects in the grain, especially after a top dyeing is applied

Leathers dyed with **Lugafast dyes** have outstanding, up to now unsurpassed fastness properties. Furthermore they are distinguished by the following properties:

- Absolutely no staining of the contact material in wash fastness, perspiration fastness and migration fastness tests
- Excellent rubfastness, no transfer of dye
- Good resistance to solvents such as tetrachloroethylene used in dry cleaning
- It is not necessary to use cationic fixing agents.
- High standards of water repellency can easily be achieved on dyed leather.

Fastness		Lugafast				
		Black AN	Brown BB	Brown BC	Red RR	Yellow GG
Washfastness	a) Leather	5	5	5	5	5
	b) Cotton	5	5	5	5	5
	c) Wool	5	5	5	5	5
Perspiration resistance without cationic fixing agent		5	5	5	5	5
Migration resistance in plasticized PVC		5	5	5	5	5
Penetration through retanned leather		5	3–4	4	4	4–5
Achievable light fastness (medium to deep shades)		up to 5	up to 5	up to 3	up to 5	up to 5

## Application

The new dyeing system employing **Lugafast dyes** can be used for many different types of leather, including the following.

- Smooth, milled nappa leather with a tight grain – without mill break
- Firm shoe upper leather with a tight grain
- Floater leather with a coarse milled grain
- Milled leather with a fine, pebbled grain
- Nubuk and suede

The new dyeing system is also especially recommended for the following types of leather.

- Shoe upper leather for unlined shoes
- Upper leather for high-performance sports footwear
- Upholstery leather and automotive leather
- High-quality garment leather that is resistant to dry cleaning
- Glove leather with excellent wet fastness
- Aniline and semi-aniline leather dyed to deep shades
- Washable shoe upper leather and garment leather
- Nubuk and suede with excellent wet and migration fastness and improved rubfastness
- Perforated leather with excellent wet and migration fastness
- Perspiration-resistant linings for shoes and garments

With this new dyeing system both wet blue and wet white can be dyed very effectively. **Lugafast dyes** form covalent bonds with the leather fibers. Thus the same excellent standards of wet fastness can now be achieved on both wet white and on wet blue leather.

A two-step process has been developed for drum dyeing with **Lugafast dyes**, which significantly differs from conventional processes. It is very important that all the parameters of this process are strictly adhered to, in order to achieve a quantitative fixation of the dye on the collagen.

In this process, the leather is neutralized and dyed in the same float at low temperatures (30 °C to 40 °C). For neutralization about 30 min. are sufficient. For an optimum dyeing it is very important that the recommended pH values of the float are adhered to.

For the fixation of the dye the pH should be increased to >9.2 and kept at this level. It is advisable to check the pH of the float regularly during the first 30 minutes of the fixation and to adjust it, if necessary.

**Standard method for dyeing with Lugafast dyes**

<b>Process</b>	<b>+</b>	<b>%</b>	<b>Product/Remark</b>	<b>°C</b>	<b>Dil.</b>	<b>Time (min.)</b>	<b>pH float</b>
<b>1. Neutralization</b>		100	Water	35			
		1.5	Sodium formate			5	
	+	1.5	Sodium bicarbonate			10	
	+	1.5	Sodium bicarbonate			15	6.8–7.8
<b>2. Dyeing</b>	+	x	<b>Lugafast</b>			40	
<b>3. Fixation</b>	+	x	Soda ash (Na <sub>2</sub> CO <sub>3</sub> )		1 : 10	80	9.2–9.8
<b>4. Rinse</b>		x	Water	38		30–40	
<b>5. Wash twice</b>		300	Water	38		15–20	
<b>6. Adjust pH</b>							
<b>7. Retan and fatliquor</b>							

Following the dyeing step, retanning, fatliquoring and water repellent treatment can be carried out conventionally.

Leather dyed with the new system behaves differently to conventionally dyed leather in the drying stage. It should be dried at lower temperatures.

- It can be hung up to dry at a temperature slightly above normal room temperature (25–35 °C).
- It can be dried in a drying tunnel at temperatures not exceeding 50 °C.
- It can be toggled and dried with warm air not exceeding 38 °C.
- It can be vacuum-dried at temperatures not exceeding 60 °C.
- It should be milled at a relative humidity of 60–70 %.



## 2. Upholstery and automotive leather

Raw material: Cattle hide wet blue, shaved thickness 1.1 – 1.2 mm

All percentages refer to the shaved weight

Process	+	%	Product/Remark	°C	Dil.	Time (min.)	pH etc.
Wash		300	Water	35		10	
Drain float							
Neutralization		100	Water	35			
		1.5	Sodium formate			5	
	+	1.5	Sodium bicarbonate			15	
	+	2	Sodium bicarbonate			10	7.7
Dyeing	+	6	<b>Lugafast</b>			30	7.5
	+	8	Soda ash (Na <sub>2</sub> CO <sub>3</sub> )		1 : 10	90	9.8
Drain float							
Rinse		x	Water	38		15	
Drain float							
Wash 2 x		300	Water	38		15	
Drain float							
pH-regulation		150	Water	38			
		4	Formic acid, 100 %		1 : 10	3 x 10 + 40	3.3
Drain float							
Retannage		100	Water	45			
		2	Sodium formate			10	4.0
Prefatliquoring	+	5	Lipoderm Liquor A 1		1 : 3	30	
	+	10	Relugan SE		1 : 3	30	
	+	15	Basyntan MLB Liquid		1 : 3		
		5	Tara			60	4.0
Fatliquoring	+	7	Lipoderm Liquor A 1		1 : 3		
		2	Lipoderm Liquor LA				
		3	Densodrin® OF		1 : 3	60	4.0
	+	100	Water	50		20	4.0
	+	1.8	Formic acid, 100 %		1 : 10	3 x 5 + 40	3.5
Drain float							
Wash 2 x		200	Water	45		15	
Drain float, horse up, set out, vacuum dry at 45 °C/3 minutes, toggle wet and dry at room temperature, condition, stake, mill at 70 % humidity, toggle slightly.							

Further information on the BASF products mentioned in connection with the **Lugafast dyes** is given in the corresponding technical information leaflets.

The shades of our dyes and pigments are illustrated in special pocket shade cards.

Please file this leaflet in your "Wet end" binder, Section 12.

## Safety

When using these products, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the precautions necessary for handling chemicals.

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## Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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