

Colocid / Colomill / Cololan Levaset / Levasol

Dyes for polyamide & wool



Colocid

- ▀ Levelling acid dyes for polyamide

Colomill

- ▀ Milling acid dyes, preferred for deep and brilliant shades on polyamide / wool

Cololan

- ▀ Metal complex dyes
- ▀ Good all round fastness properties on polyamide / wool

Levaset

- ▀ High fast dyes for polyamide / wool

Levasol

- ▀ Excellent all-round fastness
- ▀ Metal free dyes for wool

Colocid / Colomill / Cololan Levaset / Levasol

Dyestuffs for Polyamide, Wool and Silk

This shade card illustrates Acid dyes for polyamide, wool and silk.

Classification

Colocid, Colomill, Cololan, Levaset and Levasol dyes have been classified on the basis of fastness and application properties. For most applications, products from the same class will perform best in combination shades. For certain applications, products from different classes may be combined advantageously to obtain desired fastness, shade and application properties. It is however, necessary to ensure desired performance through pre-trial.

Colocid

These dyes have very good levelling properties. Coverage of barre is good. They are suitable for Pale & Bright Trichromatics combination shades. Colocid range is especially recommended for carpet and sportswear coloration.

Colomill

These milling acid dyes have good wet fastness. They are preferred for dark shades. They perform better as self shades or in limited combinations.

Cololan (1:1 Metal complex dyes)

Cololan dyes exhibit excellent all round fastness properties. These dyes exhaust from a strongly acidic bath.

Cololan K (1:2 Metal complex Non-Sulphonated dyes)

Good levelling

Good wet fastness

Good light fastness

Highly suitable for the production of pale shades on automotive fabrics. Suitable for the dyeing & printing of carpets.

Cololan S (1:2 Metal complex mono-sulphonated dyes)

Products are suitable for dyeing & printing of wool, polyamide and its blends.

Excellent fastness to light

Excellent compatibility and level dyeing

Good wet fastness

Cololan 2S (1:2 Metal complex Di-Sulphonated dyes)

Products are suitable for dyeing & printing of wool, polyamide and its blends.

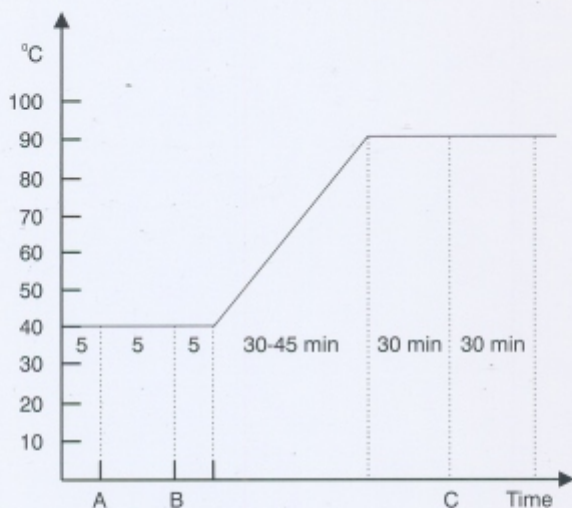
Good overall fastness in heavy shades.

High color yield and economical.

Cololan SP (1:2 Metal complex dyes)

Products are suitable for dyeing & printing of wool, polyamide and PA/Elastane blends.

Dyeing method for Colocid dyes (Levelling & Brilliant Colocid and TPM* dyes) on polyamide, wool and silk.



Method 1

Set bath at 40°C and run with goods for five minutes

- A. add 5% Glaubers Salt anhydrous
 2-3% Acetic Acid 80% for pH 4.5 to 5
 0.3-0.8% Levocol FB (Levelling Agent)
- B. add pre -dissolved dyestuff

Follow dyeing profile indicated above.

Thoroughly rinse after dyeing to remove loose colour.

Method 2

Set bath at 40°C and run with goods for five minutes.

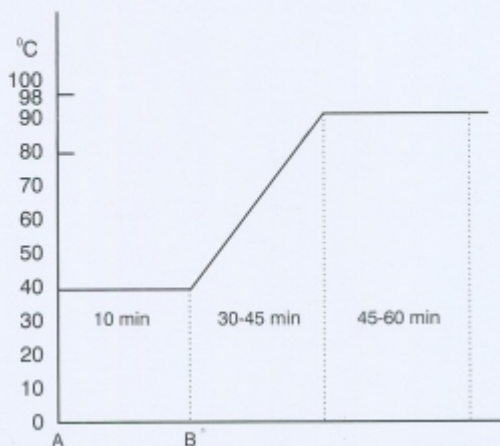
- A. add 5% Glaubers Salt anhydrous
 2% Formic Acid (85%) for pH 3.5 to 4.5
 (For PA use Pre-diluted Formic Acid)
- B. add pre -dissolved dyestuff.
- C. add 2% Sulphuric Acid (96%)/ Formic Acid (85%)
 (For PA use Pre-diluted Formic Acid)
 to complete exhaustion, if required

Follow dyeing profile indicated above.

Thoroughly rinse after dyeing to remove loose colour.

* TPM - Tri Phenyle Methane Dyes

Dyeing process for Colomill dyes (Acid Milling Dyes) on wool and polyamide



Set bath at 40°C and run with goods for 5-10 minutes.

A. add 1-2% Levacol FB (Levelling Agent)
3-4 gpl Ammonium Sulphate (Acid liberating agent) initial pH will be 6

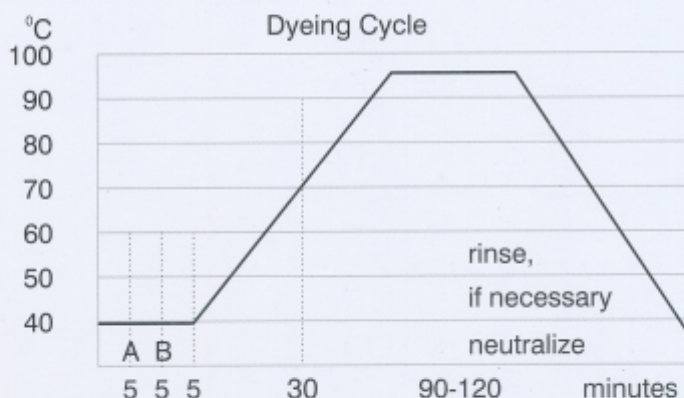
B. add pre-dissolved dyestuff.

Raise temperature to 98°C over 30-45 mins and Hold for 45-60 min at boil.

Thoroughly rinse after dyeing to remove loose colour.

Note : In higher depth, for complete exhaustion use acetic acid.

Dyeing Process for Cololan dyes (1:1 Metal Complex Dyes) for wool.



A. add 6-7 g/l Sulphuric Acid 96% (more than 1% dye).
OR

4-5 g/l Sulphuric Acid 96% (up to 1% dye).

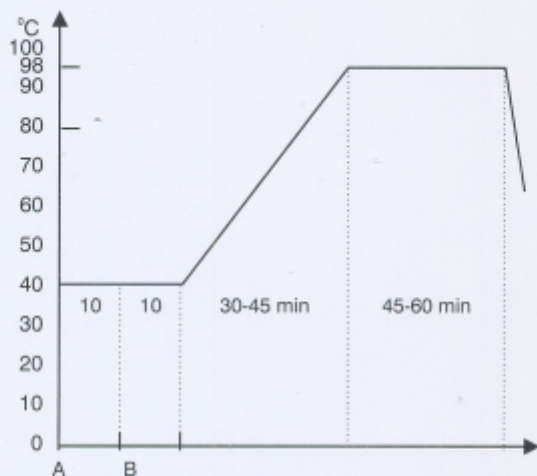
5% Glauber's salt anhyd.

B. add pre-dissolved Cololan (1:1 metal complex) dyestuff

Raise temperature to 98°C and Hold for 90-120 min at boil.

Thoroughly rinse after dyeing to remove loose colour.

Dyeing process for Cololan K / Cololan S / Cololan 2S dyes on wool and polyamide



Set bath at 40°C and run with goods for 5-10 minutes.

- A. add 2 g/l Sodium Acetate / Ammonium Acetate
1 m/l Acetic acid (Initial pH of dyeing should be 6 and add Acetic acid for better exhaustion during dyeing process to achieve pH 4.5)
1 % Levacol FB (Levelling Agent)
- B. add pre-dissolved Cololan K/S/2S dyestuff

Raise temperature to 98°C and Hold for 45-60 min at boil.

Thoroughly rinse after dyeing to remove loose colour.

* For wool, Isoelectric point is achieved at pH 5. Better to maintain pH 5 during dyeing process of wool.

After Treatment for all ranges

- Rinse with fresh water & drain
- Soaping : Use 0.5 to 1 gpl Levocol ENID (Eco-friendly nonionic detergent) Soap (If Required), at 60°C for 15-20 min. as per shade depth & drain
- Cold wash with fresh water and drain
- After treatment for improving wet fastness
3-4% Levocol NR (Dye Fixing Agent) pH 4.5, 20 min., 70°C

Levaset : Versatile range offers following benefits

- Wide range cover a broad spectrum of shades
- Excellent on-tone exhaustion
- Superior levelling & migration actions
- Good light, wet and all round fastness
- Right to first time cost effective dyeing application
- Very good on-tone dyeing on PA / wool blends
- Excellent compatible with Colocid & Colomill range
- Minimum cross-staining on blend's fibers like cotton, polyester blends

Levaset dyes can be applied on

- Loose fibres
- Sliver tops in package form
- Yarn hank
- Yarn package
- Fabric

Recommended application of Levaset dyed material

- Men's & women's outerwear, swimwear.
- Knit goods
- House hold, decorative and upholstery fabrics
- Carpets and flooring fabrics

General exhaust dyeing method

- Light shade can be dyed by keeping pH 6.0 for better levelling
- Dark shades can be dyed by keeping pH 4.0 - 5.0

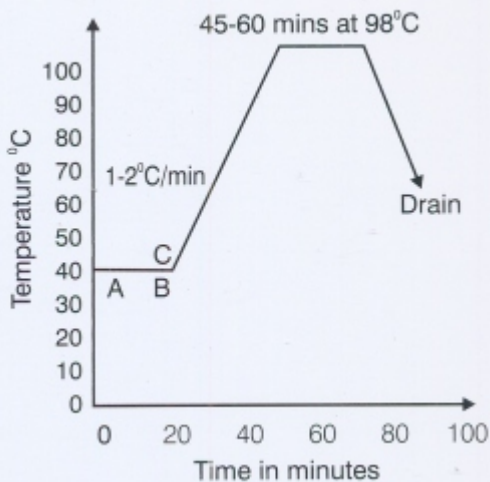
Preparation (Soaping & Scouring)

- 1 g/l Levocol ENID (Eco-friendly non-ionic detergent)
- 1 g/l Soda Ash

Soap at 60°C for 20 mins and neutralise with Acetic acid

Dissolving the dyes

Dyestuff is spreaded slowly to hot water (70°C) under stirring till dissolved completely



A = Addn. of auxiliaries B = pH adjustment C = X% Levaset dyes

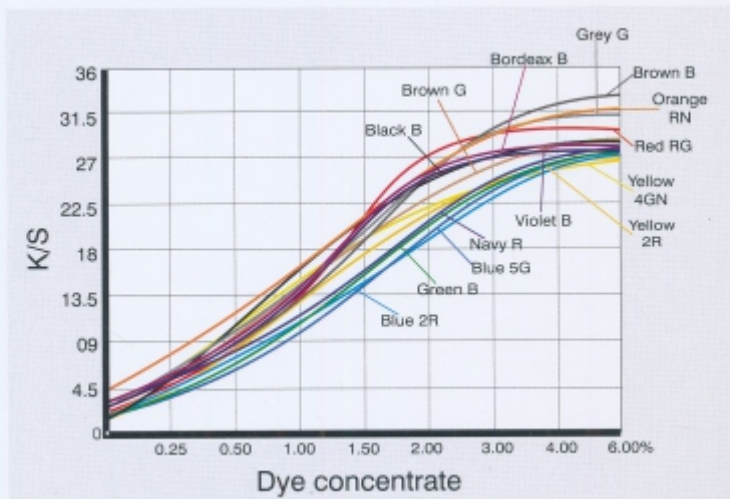
Set the dye bath at 40 $^{\circ}\text{C}$ and run with goods for five minutes.

- A. add 2 g/l Sodium Acetate / Ammonium Acetate
 1 ml/ Acetic acid (Initial pH of dyeing should be 6 and add Acetic acid for better exhaustion during dyeing process to achieve pH 4.5)
 1% Levacol FB (Levelling Agent)
- B. add pre-dissolved Levaset dyestuff

Raise temperature to 98 $^{\circ}\text{C}$ @ as per gradient shown in above figure and Hold for 45-60 mins.

Thoroughly rinse after dyeing to remove loose colour.

K/S Vs. Dye conc. Graph indicates the Similar dye exhaustion of whole range.



Levasol Dyes

A unique concept in wool coloration

Levasol dyes are modified reactive dyes specially suited for coloration of wool and silk.

Covalent dye-fibre bonds produce dyeing of excellent wet fastness

Salient features

- Excellent fastness properties
- Range of brilliant shades
- Metal free
- Eco friendly
- Lower on effluent load

Levasol dyes can dye all kinds of wool and silk in loose stock, yarn, felt free super-wash wool and piece goods.

Dyeing wool with Levasol dyes

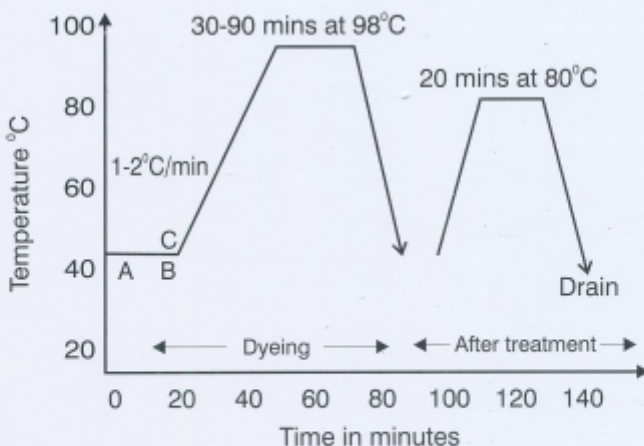
Dyeing of Levasol dyes on wool can be carried out by exhaust method in a weakly acidic bath : pH 4.5-5 for deep shades and pH 5.5-6 for pale shades.

Fiber affinity increases with the shrink resist finishes like chlorination / hercosett or PMS treatment. Hence dyeing of treated wool should commence at relatively lower temperature, like 30°C while for untreated wool it can start from 50°C.

Dyeing recipe

- 5 - 10% Glauber's salt anhydrous (recommended for pale shades)
- X% Acetic acid (pH 4.5 to 6 depending on depth of shade)
- 3 - 4% Sodium acetate / Ammonium Sulphate as buffer
- 1 - 2% Levocol FB (Levelling agent)

Levasol dyes dyeing cycle



A = Addn. of auxiliaries B = pH adjustment C = X% Levasol dyes.

- For better control of pH especially while dyeing deeper shades use of buffers, like - acetic acid / sodium acetate or acetic acid / ammonium Sulphate, is recommended.
- Run the bath for ten minutes and then make an addition of Levasol dye solution.
- Use of levelling auxiliaries of amphoteric nature promotes dye penetration and surface levelness.
- It is important to hold the bath after dye exhaustion for complete fixation.

Higher the bath temperature lowers the hold time, e.g. at 85°C hold time 90 min. while at 105°C it can be 30 min

- Deeper shades need longer hold time, e.g. while 30min. is sufficient for pale shades (0.5%), 90 min. hold time is recommended for deep shades (above 4%).
- For shades prone to un-leveling, an intermediate hold for 30 min. at 70°C is useful.
- Glauber's salt in the bath, up to 10%, promotes surface levelness by slowing down the rate of dye uptake.

After-treatment for Levasol Dyes

An after-treatment, preferably, in a fresh bath with 1.5 gpl ammonia (pH 8-8.5) at 80 - 85°C improves the wet fastness significantly. This is followed by thorough rinse and an acid wash with 1% Formic acid / acetic acid.

Notes to fastness data :

The fastness properties were tested and evaluated in accordance with following standard test method on 1/1 SD.

| | |
|---|--|
| Light fastness | ISO 105 B02 -1994 |
| Wash fastness | ISO 105 C10B (50°C) |
| Water severe | ISO 105 E01 |
| Chlorine fastness | ISO 105 E03 (20 ppm and 50 ppm available -chlorine |
| Fastness to sea water | ISO 105 E02 |
| Fastness to perspiration (Alkaline and Acidic) | ISO 105 E04 |
| Fastness to rubbing Dry/Wet | ISO 105 X12 |

Key to figures :



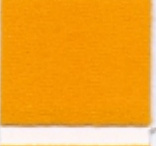
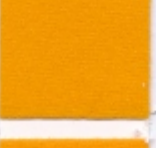

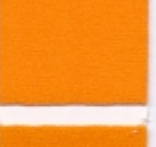

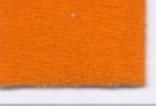
| | |
|------------------|--|
| 1st figure | : Change of shade |
| 2nd figure | : Staining of wool (Adjacent fabric) |
| 3rd figure | : Staining of cotton (Adjacent fabric) |
| Solubility | : R.O. Water with Filter Paper MN 918 |
| Dischargeability | : Rating |

| | |
|--------|------------------------|
| 1 | Non Dischargeable |
| 2 to 4 | Moderate Dischargeable |
| 5 | Fully Dischargeable |

The Information provided here is in good faith, as per our current knowledge of the product without liabilities.

PATTERNS

| Dyeing on Polyamide | Colocid / Colomill | Classification | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | |
|--|--|----------------|------------------------|--|--|-----------------------------|--------------------------|---|----------------------------------|------------------------|---|---|
| | | | Solubility at 90°C g/l | Light fastness ISO 105 B02 - 1994 (11 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | | | | Perspiration fastness (Acid) ISO 105 E04 |
| | | | | 20 ppm | 50 ppm | Wet | Dry | | | | | |
|  | T002510117 Colocid Yellow CGN <i>C. I. Acid Yell. 184</i> 1.50% | Leveling | 40 | 3-4 | 4 3-4 3-4 | 4 3-4 3-4 | 4 2-3 2 | 4-5 3-4 3-4 | 4 4 4 | 4 3 | 4-5 4 | 3 |
|  | T002800116 Colocid Fluorescent Yellow 8G <i>C. I. Acid Yell. 250</i> 0.70% | Half Milling | 50 | 4 | 4 3-4 3 | 3-4 2-3 2-3 | 1-2 1 1 | 4 2-3 2-3 | 4 3 3 | 3-4 3 3 | 5 4-5 | 3 |
|  | T002010116 Colocid Light Fast Yellow 2G 168% <i>C. I. Acid Yell. 17</i> 1.30% | Half Milling | 100 | 6+ | 4-5 4-5 4 | 4 3-4 4 | 4 2 2 | 4 2-3 2-3 | 4 3 3 | 4 3 3 | 4-5 4 | 4 |
|  | T002300112 Colocid Yellow FG 200% <i>C. I. Acid Yell. 49</i> 1.00% | Leveling | 50 | 6+ | 4 3-4 4 | 4 4 4-5 | 4 3-4 3 | 4 3-4 4 | 4 3-4 4 | 4-5 4 4 | 5 4-5 | 4 |
|  | T002880116 Colomill Yellow M 4G <i>C. I. Acid Yell. 79</i> 1.00% | Milling | 80 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 5 4-5 | 4-5 4 4-5 | 4-5 4-5 4-5 | 4-5 4 4 | 5 5 | 5 |
|  | T002220118 Colomill Yellow M 5GN 200% <i>C. I. Acid Yell. 110</i> 1.20% | Half Milling | 50 | 5 | 4-5 4-5 4-5 | 4-5 3-4 3 | 4-5 4 3-4 | 4-5 3-4 3 | 4-5 4 4 | 3-4 4 2-3 | 5 4-5 | 5 |
|  | T002080119 Colocid Fast Yellow GP 200% <i>C. I. Acid Yell. 19</i> 1.30% | Half Milling | 40 | 5-6 | 4 3 4-5 | 4 3-4 4 | 4-5 3 3 | 4-5 4 4-5 | 4-5 4 4-5 | 5 4-5 | 5 4-5 | 5 |
|  | T002550116 Colocid Fast Yellow A3GL <i>C. I. Acid Yell. 216</i> 0.70% | Milling | 30 | 6+ | 4-5 4-5 3-4 | 4-5 4-5 4-5 | 4 5 4 | 4-5 3-4 4 | 4-5 4 4 | 5 4-5 | 4-5 4 | 4 |

| Dyeing on Polyamide | Colocid / Colomill | Classification | Solubility at 90°C g/l | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | |
|--|---|----------------|------------------------|--|--|-----------------------------|--------------------------|---|---|-----------|----------------------------------|------------------------|---|-----------|
| | | | | Light fastness ISO 105 B02 -1994 (111 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | 20 ppm | | | | 50 ppm |
| | | | | | | | | | | 20 ppm | | | | 50 ppm |
|  | T002120118 Colomill Yellow M 250% <i>C. I. Acid Yell. 42 0.70%</i> | Milling | 40 | 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4 4-5 4-5 | 4 4-5 4-5 | 4-5 4-5 4-5 | 4 | 4-5 4 | 4 | | |
|  | T002460116 Colocid Yellow FLW <i>C. I. Acid Yell. 159 0.90%</i> | Levelling | 50 | 6+ | 4 4 4 | 4-5 4-5 4-5 | 4 4-5 4 | 5 4-5 4-5 | 4-5 4-5 5 | 5 5 | 5 5 | 4 | | |
|  | T002500118 Colocid Yellow A3R <i>C. I. Acid Yell. Mix. 0.85%</i> | Levelling | 30 | 6+ | 4-5 4-5 4 | 4-5 4-5 5 | 4-5 4 4-5 | 5 4-5 5 | 4-5 4-5 5 | 5 4-5 | 5 5 | 5 | | |
|  | T0033001116 Colocid Yellow 3RL <i>C. I. Acid Or. 67 1.00%</i> | Half Milling | 60 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 4 | 4-5 4-5 4-5 | 5 4-5 | 5 5 | 4 | | |
|  | T002710117 Colocid G. Yellow 4RK <i>C. I. Acid Yell. 219 0.80%</i> | Levelling | 70 | 6+ | 4 3-4 3-4 | 4 3-4 4 | 2-3 4 2-3 | 4-5 4 4 | 4 3-4 4 | 5 5 | 4 3-4 | 3-4 | | |
|  | T003400116 Colomill Orange M GSN <i>C. I. Acid Or. 33 1.30%</i> | Half Milling | 80 | 6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 3-4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 | 4-5 4 | 3-4 | | |
|  | T002270116 Colocid Yellow 4R <i>C. I. Acid Yell. 199 1.00%</i> | Levelling | 40 | 6+ | 4-5 4-5 4 | 4-5 4-5 4-5 | 4-5 4 4 | 5 4-5 5 | 4 4 4-5 | 4-5 4 | 5 5 | 5 | | |
|  | T003040117 Colocid Orange NR 216% <i>C. I. Acid Or. 116 0.50%</i> | Levelling | 20 | 6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 5 4-5 4-5 | 5 5 5 | 4-5 4-5 4-5 | 5 5 | 5 4-5 | 4-5 | | |

| Dyeing on Polyamide | Colocid / Colomill | Classification | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | | | |
|--|--|----------------|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----------|-----|-----|
| | | | Solubility at 90°C g/l | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | 50 ppm | Dry | Wet |
| | | | | | | | | | | | | | | | | |
|  | T004260118 Colocid Rhodamine B H/C <i>C. I. Acid Red 52 0.75%</i> | TPM* | 70 | 1-2 | 4 3-4 3 | 4 2-3 2-3 | 1-2 2 1-2 | 3-4 2-3 2-3 | 3-4 2-3 2-3 | 4 3 | 4 3-4 | 1 | | | | |
|  | T004060112 Colocid Red FRL <i>C. I. Acid Red 337 0.50%</i> | Levelling | 30 | 6 | 4 4 4-5 | 4-5 4-5 4-5 | 4-5 3-4 4 | 4-5 3-4 4 | 4 4 4-5 | 4-5 4-5 | 4-5 4 | 4 | | | | |
|  | T004880116 Colocid Red A3G <i>C. I. Acid Red 447 1.00%</i> | Milling | 40 | 3-4 | 4-5 4-5 4 | 5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 5 | 4-5 4 | 4 | | | | |
|  | T004820118 Colomill Red M F2R <i>C. I. Acid Red 151 1.00%</i> | Levelling | 50 | 4 | 4 2 1-2 | 3-4 4 3 | 4-5 4 3-4 | 4 4 3 | 4-5 4 3-4 | 5 5 | 4 3-4 | 5 | | | | |
|  | T004320116 Colocid Red C2F <i>C. I. Acid Red 336 1.60%</i> | Half Milling | 60 | 4-5 | 4-5 4-5 4 | 4 4 4 | 4-5 4-5 4-5 | 4-5 4 4-5 | 4-5 4-5 5 | 5 4 | 5 5 | 3 | | | | |
|  | T004650116 Colocid Red MB <i>C. I. Acid Red 138 0.425%</i> | Half Milling | 30 | 3 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 3-4 4-5 4-5 | 4-5 4 4 | 4-5 4-5 4-5 | 4-5 4-5 | 5 4-5 | 4 | | | | |
|  | T004890116 Colocid Pink BLRF 200% <i>C. I. Acid Red 418 2.00%</i> | Levelling | 70 | 5-6 | 4-5 4 4-5 | 4-5 4-5 4-5 | 3-4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 4-5 | 4-5 4 | 4 3-4 | 1 | | | | |
|  | T004580116 Colomill Red M 2BN <i>C. I. Acid Red 249 1.10%</i> | Milling | 50 | 2 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 5 5 | 5 5 | 4 | | | | |

| Dyeing on Polyamide | Colocid / Colomill | Classification | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | |
|--|---|----------------|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----------|
| | | | Solubility at 90°C g/l | Light fastness ISO 105 B02 -1994 (1/1 st SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | 50 ppm |
| | | | | | | | | | | | | | | |
|  | T004540113 Colocid Red 2B 200% <i>C. I. Acid Red 361 0.65%</i> | Half Milling | 50 | 6 | 4 3-4 4-5 | 5 4-5 4-5 | 4-5 4 4 | 5 4 4 | 4-5 4-5 4-5 | 5 | 5 3-4 | 3-4 | | |
|  | T004620118 Colocid Fast Red A <i>C. I. Acid Red 88 0.85%</i> | Levelling | 30 | 2 | 2 4 3 | 4 4 4 | 4-5 4 3-4 | 4-5 3-4 2-3 | 4-5 4-5 4 | 5 | 4 3-4 | 4 | | |
|  | T004770118 Colocid Red E2B <i>C. I. Acid Red 127 0.95%</i> | Half Milling | 60 | 6+ | 4 2-3 4 | 4-5 4-5 3-4 | 5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 | 5 4-5 | 4 | | |
|  | T004980116 Colocid Red B2B <i>C. I. Acid Red 266 0.80%</i> | Levelling | 15 | 6 | 4 2-3 2-3 | 4-5 4 4-5 | 5 4 4 | 4-5 3-4 3-4 | 4-5 4 4 | 5 | 5 5 | 4 | | |
|  | T004110116 Colocid Red CS <i>C. I. Acid Red 426 0.70%</i> | Levelling | 40 | 6+ | 4 2-3 3 | 4-5 4-5 4-5 | 5 4-5 4 | 4-5 4-5 4 | 4-5 4-5 4-5 | 5 | 4-5 4 | 4 | | |
|  | T004100116 Colocid Red NBL <i>C. I. Acid Red 260 0.85%</i> | Milling | 40 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 | 5 4-5 | 4 | | |
|  | T004700128 Colomill Red M 3BN 140% <i>C. I. Acid Red 131 0.80%</i> | Half Milling | 50 | 2 | 4-5 4 4 | 4-5 4-5 3-4 | 4-5 4-5 4 | 4 3-4 4 | 4-5 4-5 4-5 | 5 | 4-5 4 | 3 | | |
|  | T005410117 Colomill Brill. Red M 10B 142% <i>C. I. Acid Vi. 54 0.70%</i> | Milling | 60 | 2 | 4-5 4-5 4-5 | 5 4-5 5 | 4-5 5 4-5 | 4 4 4 | 4-5 4-5 4-5 | 5 | 5 4-5 | 5 | | |

Dyeing
on
Polyamide

**Colocid /
Colomill**

Classification

Solubility at 90°C g/l

Light fastness
ISO 105 B02 - 1994 (1/1 SD)

Washing fastness
ISO 105 C10:B (50°C)

Water Severe
ISO 105 E01

Sea Water
ISO 105 E02

Perspiration fastness (Alk.)
ISO 105 E04

Perspiration fastness (Acid)
ISO 105 E04

Chlorine fastness
ISO 105 E03

20 ppm

50 ppm

Rubbing
ISO 105 X12

Dry

Wet

Dischargeability
(Zn Sulfoxylate Formaldehyde)

T007030116

**Colocid
Green V 300%**

C. I. Acid Gr. 16 1.10%

TPM*

100

1

4
3-4
3

3-4
2
2-3

3-4
2
2

3-4
1-2
2

2-3
2
2-3

4-5
4-5

3-4
3

5
4-5

3-4
3

1-2
3

T007160118

**Colocid
Green 3B**

C. I. Acid Gr. 25 1.75%

Half Milling

40

6

4
3-4
3-4

5
2-3
3

3
3
2-3

3
2-3
2-3

4
3
3-4

5
4-5

5
4-5

1

T007240116

**Colocid
Green M GW**

C. I. Acid Gr. 27 2.50%

Milling

40

3-4

3-4
4
4-5

4-5
4-5
4-5

4-5
4-5
4-5

4-5
3-4
4-5

4-5
4
4-5

4-5
4-5

5
4-5

5
4-5

5
4-5

5
4

1

T009440126

**Colocid
Black VLO 125%**

C. I. Acid Bk. 26 2.00%

Milling

40

3-4

4
4-5
3

5
4-5
4-5

5
4-5
4-5

5
4
4

5
4-5
4-5

5
5

4-5
4

4-5
4

4-5
4

4-5
4

2

T009500117

**Colocid
Black MF**

C. I. Acid Bk. Mix. 2.00%

Levelling

70

4-5

4-5
4-5
3-4

4-5
3-4
3-4

4-5
3-4
3-4

4-5
3-4
3-4

4-5
4
4

4
3

4-5
4



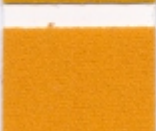

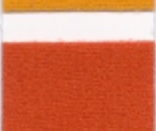


4-5
4



4

4

4



| Dyeing on Wool | Cololan | Solubility at 90°C g/l | Fastness Properties | | | | | | Rubbing ISO 105 X12 Dry Wet | Dischargeability (Zn Sulfoxylate Formaldehyde) |
|--|---|------------------------|--|--|-----------------------------|--------------------------|---|---|--------------------------------------|---|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | |
| | | | | | | | | | | |
|  | T052040136 Yellow GR 175% <i>C. I. Acid Yell. 99 0.65%</i> | 40 | 5 | 4 4-5 4-5 | 4-5 4-5 5 | 4 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 3-4 | 2 |
|  | T053030119 Orange G 250% <i>C. I. Acid Or. 74 1.00%</i> | 40 | 6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 | 3-4 |
|  | T054200118 Red GRE 200% <i>C. I. Acid Red 183 1.20%</i> | 40 | 4 | 4 4-5 4-5 | 4-5 4-5 4-5 | 3-4 4-5 4-5 | 4 4 4 | 4 4-5 4-5 | 4-5 4 | 4 |
|  | T054250116 Pink B <i>C. I. Acid Red 186 1.00%</i> | 50 | 5 | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 4-5 4 3-4 | 4-5 4-5 4 | 4-5 4 | 3-4 |
|  | T054300117 Pink BE 200% <i>C. I. Acid Red 195 0.70%</i> | 40 | 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4 | 1 |
|  | T056000116 Blue 2G 250% <i>C. I. Acid Bl. 158 1.00%</i> | 40 | 6 | 4 4-5 4-5 | 4-5 4-5 4 | 4 4 3-4 | 4 4 3-4 | 3-4 4-5 3-4 | 4-5 4 | 3-4 |
|  | T059010117 Black WA <i>C. I. Acid Bk. 52 3.00%</i> | 120 | 5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4-5 4-5 5 | 4-5 4 4 | 4-5 5 4-5 | 3 2-3 | 3-4 |








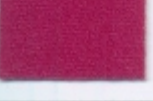
| Dyeing on Polyamide | Cololan K 1:2 Metal Complex Non-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | | |
|--|---|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----------|-----|
| | | | Light fastness ISO 105 B02 -1994 (1% SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | 50 ppm | Dry |
| | | | | | | | | | | | | | | |
|  | T052250116 Yellow K-2GL 100% <i>C. I. Acid Yell. 59 1.00%</i> | 50 | 6+ | 4-5 4 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 5 5 | 4-5 4-5 | 4 | | | |
|  | T052280116 Yellow K-GRL 200% <i>C. I. Acid Yell. 116 0.72%</i> | 40 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 3-4 | 4-5 4 | 2 | | | |
|  | T052130123 Yellow K-W 250% <i>C. I. Acid Yell. 151 1.00%</i> | 40 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4 4 | 5 4-5 | 2 | | | |
|  | T052530116 Yellow K3R <i>C. I. Acid Yell. 137 0.75%</i> | 80 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 5 4-5 | 5 4-5 | 2 | | | |
|  | T053250118 Yellow 2RNL <i>C. I. Acid Or. 80 1.50%</i> | 40 | 6+ | 4-5 5 3-4 | 5 5 3-4 | 4-5 5 4-5 | 5 5 4-5 | 5 5 4 | 5 5 | 5 4-5 | 2-3 | | | |
|  | T053400117 Orange K-RLS <i>C. I. Acid Or. 107 1.60%</i> | 60 | 6+ | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 5 5 | 5 4-5 | 3-4 | | | |
|  | T053100116 Orange RL 200% <i>C. I. Acid Or. 86 2.20%</i> | 50 | 6 | 4-5 4-5 4-5 | 5 4-5 4-5 | 5 5 4-5 | 5 5 4-5 | 4-5 5 4-5 | 4-5 4 | 5 4-5 | 2-3 | | | |
|  | T054230116 Bordeaux EL 200% <i>C. I. Acid Red 251 1.00%</i> | 40 | 6+ | 5 4-5 4-5 | 5 5 4-5 | 4-5 5 4-5 | 5 3-4 4-5 | 5 5 4-5 | 5 5 | 5 4-5 | 4 | | | |







| Dyeing on Polyamide | Cololan K 1:2 Metal Complex Non-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|-----------|----------------------------------|------------------------|---|-----------|
| | | | Light fastness ISO 105 B02 -1994 (1/1 sd) | Washing fastness ISO 105 C10-B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | 20 ppm | | | | 50 ppm |
| | | | | | | | | | | | | | |
|  | T054040123 Bordeaux K-RL 220% <i>C. I. Acid Red 182 0.70%</i> | 25 | 6+ | 4 4 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 5 4-5 | 4-5 4 | 3 | | |
|  | T059530117 Grey K-BL <i>C. I. Acid Bk. 60 0.80%</i> | 25 | 6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 5 5 | 5 4-5 | 4 | | |
|  | T059430116 Black MBN <i>C. I. Acid Bk. 63 2.50%</i> | 25 | 6+ | 4-5 2 4-5 | 5 4 4-5 | 4-5 4-5 5 | 4-5 4-5 4 | 4-5 4-5 5 | 5 5 | 3 3 | 1 | | |
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| Dyeing on Polyamide | Cololan S 1:2 Metal Complex Mono-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | | |
|--|--|------------------------|---|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----------|-----|
| | | | Light fastness ISO 105 B02 - 1994 (111 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | 50 ppm | Dry |
| | | | | | | | | | | | | | | |
|  | T052520113 Yellow SG <i>C. I. Acid Yell. 232 0.75%</i> | 80 | 6 | 4-5 4-5 4 | 5 5 4-5 | 5 4-5 4 | 4-5 4-5 3-4 | 5 5 4-5 | 5 5 | 5 4-5 | 4 | | | |
|  | T052610116 Yellow S-2GL <i>C. I. Acid Yell. 235 1.00%</i> | 60 | 6+ | 5 5 4-5 | 5 4-5 4-5 | 5 5 4-5 | 5 4-5 4-5 | 5 5 4-5 | 3 3 | 5 4-5 | 3 | | | |
|  | T052450118 Yellow S-2G <i>C. I. Acid Yell. 220 1.00%</i> | 70 | 6+ | 4-5 4-5 4-5 | 5 5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 | 5 4-5 | 3 | | | |
|  | T053440113 Orange S-R <i>C. I. Acid Or. 144 0.75%</i> | 60 | 6+ | 5 4 5 | 4-5 5 4-5 | 4-5 5 4-5 | 5 4-5 4-5 | 4-5 5 4-5 | 5 5 5 | 5 5 | 3-4 | | | |
|  | T053410119 Orange S-2R <i>C. I. Acid Or. 154 0.80%</i> | 60 | 6+ | 4-5 4 4-5 | 4-5 5 4-5 | 5 5 4-5 | 4-5 4-5 4-5 | 4 5 4 | 5 5 4-5 | 5 5 | 2 | | | |
|  | T054290117 Red S-RL <i>C. I. Acid Red 414 0.75%</i> | 80 | 6+ | 5 4 5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 4-5 5 4-5 | 4-5 5 4-5 | 4-5 5 4 | 5 5 | 2 | | | |
|  | T054280116 Red S-GN <i>C. I. Acid Red 359 0.75%</i> | 30 | 6+ | 4 3-4 4-5 | 4-5 5 5 | 5 5 4-5 | 4-5 5 4-5 | 4-5 5 4-5 | 5 5 5 | 5 4 | 2 | | | |
|  | T054400128 Red S-G <i>C. I. Acid Red 315 1.00%</i> | 50 | 4 | 4-5 3-4 4-5 | 4-5 4-5 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 5 5 4-5 | 5 5 | 1 | | | |

| Dyeing on Polyamide | Cololan S 1:2 Metal Complex Mono-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | | |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----------|-----|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SP) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | 50 ppm | Wet |
| | | | | | | | | | | | | | | |
|  | T054130119 Bordeaux S-B <i>C. I. Acid Red 405 0.90%</i> | 80 | 3-4 | 4-5 3-4 5 | 4 4-5 4-5 | 4 5 4-5 | 4 5 4-5 | 4 5 4-5 | 5 5 4-5 | 5 5 5 | 1 | | | |
|  | T056250119 Blue 3GL 200% <i>C. I. Acid Bl. 171 1.00%</i> | 40 | 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4 4 | 3 | | | |
|  | T056350120 Navy Blue S-G 150% <i>C. I. Acid Bl. 317 1.00%</i> | 100 | 5-6 | 5 4-5 5 | 5 5 4-5 | 5 5 4-5 | 5 5 4-5 | 5 4-5 4-5 | 5 5 5 | 5 5 5 | 2 | | | |
|  | T056320123 Navy Blue S-B 150% <i>C. I. Acid Bl. 284 1.00%</i> | 50 | 6+ | 5 4-5 5 | 4-5 5 4-5 | 5 5 4-5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 5 5 4-5 | 5 5 5 | 2 | | | |
|  | T057120116 Olive S-G <i>C. I. Acid Gr. 73 1.00%</i> | 60 | 5-6 | 4-5 4-5 5 | 5 5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 5 5 4-5 | 4-5 4 4 | 2 | | | |
|  | T058550117 Brown S2R <i>C. I. Acid Br. 357 1.50%</i> | 50 | 6 | 4 4-5 5 | 4-5 4-5 4-5 | 4 4-5 4-5 | 4 4-5 4-5 | 4-5 4-5 4-5 | 5 5 5 | 5 4-5 4-5 | 2-3 | | | |
|  | T058460117 Red Brown S-R <i>C. I. Acid Br. 283 0.80%</i> | 80 | 6+ | 5 4-5 5 | 5 5 5 | 4-5 5 4-5 | 5 5 4-5 | 4-5 4-5 4-5 | 5 5 5 | 5 4-5 4-5 | 2-3 | | | |
|  | T058420116 Brown S-GL <i>C. I. Acid Br. 298 0.80%</i> | 60 | 6+ | 5 4-5 5 | 5 5 5 | 4-5 5 3 | 4-5 5 4-5 | 4-5 4-5 5 | 5 4-5 4-5 | 4-5 4 4 | 3 | | | |

| Dyeing on Polyamide | Cololan S 1:2 Metal Complex Mono-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | | |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|--------|--|-----|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | | |
| | | | | | | | | | | | | 50 ppm | | Wet |
| | | | | | | | | | | | | Dry | | |
|  | T058360129 | 80 | 6+ | 5 | 4 | 4 | 3-4 | 4-5 | 5 | 5 | 3-4 | | | |
| | Brown S-GR 150% <i>C. I. Acid Br. 282 0.75%</i> | | | 4-5 | 5 | 4-5 | 5 | 3-4 | 4-5 | 4-5 | | | | |
|  | T059400113 | 50 | 6+ | 4 | 4-5 | 4-5 | 4-5 | 4-5 | 5 | 4-5 | 2 | | | |
| | Black S-BGL 200% <i>C. I. Acid Bk. 107 2.90%</i> | | | 4-5 | 4-5 | 4-5 | 4 | 4-5 | 5 | 4 | | | | |
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| Dyeing on Polyamide | Cololan 2S 1:2 Metal Complex Di-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 20 ppm 50 ppm | Rubbing ISO 105 X12 Dry Wet | Dischargeability (Zn Sulfoxylate Formaldehyde) |
|--|--|------------------------|---|--|-----------------------------|--------------------------|---|---|----------------------------------|--|--------------------------------------|---|
| | | | Light fastness ISO 105 B02 -1994 (1/15 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | Chlorine fastness ISO 105 E03 | | | |
| | | | | | | | | | | | | |
|  | T052160116 Yellow 2S-3RL <i>C. I. Acid Yell. 194 0.72%</i> | 40 | 6+ | 4 4 4-5 | 4 4 4-5 | 4 3-4 3-4 | 4 3 3-4 | 4 4 5 | 4 3 | 5 4-5 | 2 | |
|  | T058540112 Yellow Brown M3R <i>C. I. Acid Br. 384 0.80%</i> | 25 | 6 | 4-5 4-5 3-4 | 5 4-5 4 | 5 4-5 4-5 | 5 4-5 4 | 5 5 4-5 | 5 5 | 5 4 | 2 | |
|  | T052490116 Yellow 2S-GLN <i>C. I. Acid Yell. 241 1.00%</i> | 15 | 6+ | 4 4-5 4-5 | 4-5 4-5 4 | 4 4-5 4-5 | 4-5 4-5 4 | 4-5 5 4-5 | 5 5 | 5 4-5 | 3-4 | |
|  | T052150117 Yellow 2S-5RL <i>C. I. Acid Yell. 204 0.90%</i> | 40 | 6+ | 4 4 4-5 | 4 4 4 | 3-4 3 3 | 3 2-3 3 | 4 3-4 4-5 | 5 4-5 | 4-5 4 | 3 | |
|  | T053200116 Orange 2S-RL <i>C. I. Acid Or. 142 0.72%</i> | 40 | 6+ | 4-5 4-5 5 | 4 3-4 4-5 | 4 3-4 4 | 3-4 3 4 | 4 3-4 4-5 | 5 4-5 | 4-5 4 | 3 | |
|  | T054270131 Scarlet 2S-L <i>C. I. Acid Red 357 0.80%</i> | 40 | 6+ | 4-5 4-5 4-5 | 4 3-4 4-5 | 4 4 4-5 | 4 3-4 4-5 | 4 4 4-5 | 5 5 | 4-5 4 | 3 | |
|  | T054100116 Red 2S-BR <i>C. I. Acid Red 362 0.72%</i> | 40 | 6 | 4 4 5 | 4 3-4 4 | 4 3-4 4 | 3 3 3-4 | 4 3-4 4-5 | 4-5 4-5 | 3-4 4 | 3 | |
|  | T055520118 Bordeaux 2S-B <i>C. I. Acid Vi. 90 0.80%</i> | 20 | 6+ | 4-5 4-5 4-5 | 4 3-4 5 | 4 4 5 | 4 3-4 4-5 | 4-5 4 5 | 5 4 | 4-5 4 | 1 | |

| Dyeing on Polyamide | Cololan 2S 1:2 Metal Complex Di-Sulphonated | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) |
|--|--|------------------------|--|--|----------------------|--------------------------|---|---|----------------------------------|------------------------|---|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | |
| | | | | Water Severe ISO 105 E01 | Water ISO 105 E01 | | | | | | |
|  | T056140117 Navy 2S-RL <i>C. I. Acid Bl. 193 3.00%</i> | 40 | 6+ | 4 4 4-5 | 3 3-4 4 | 4 4-5 4-5 | 3 3 3 | 4 4 4 | 4 4 3-4 | 4 | |
|  | T058100116 Brown 2S-BL <i>C. I. Acid Br. 355 0.80%</i> | 30 | 6+ | 4 4 4-5 | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4-5 4 4 | 3 | |
|  | T058190116 Brown 2S-2RL <i>C. I. Acid Br. 365 0.80%</i> | 40 | 6+ | 4 4 4-5 | 4-5 4-5 4-5 | 4 4-5 4 | 4 4 4 | 4-5 4-5 4-5 | 5 4 4 | 4-5 4 4 | 3 |
|  | T057000116 Olive Green 2S-BGL <i>C. I. Acid Gr. 104 0.80%</i> | 60 | 6+ | 4 4 4-5 | 4 4-5 4-5 | 4 4-5 4-5 | 4 4-5 4-5 | 5 4-5 4-5 | 4-5 4 4 | 2-3 | |
|  | T059100120 Black LD 162% <i>C. I. Acid Bk. 172 3.85%</i> | 100 | 6+ | 4-5 4-5 4-5 | 4 4 4-5 | 4 4 4-5 | 4 3-4 3-4 | 4 4-5 4 | 5 5 4-5 | 5 4-5 4-5 | 2-3 |
|  | T059200117 Black M-RL 165% <i>C. I. Acid Bk. 194 3.60%</i> | 100 | 6+ | 3 3 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4 4 4 | 4 4-5 4-5 | 5 4-5 5 | 4-5 4-5 4 | 2-3 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Dyeing on Polyamide | Cololan SP 1:2 Metal Complex | Solubility at 90°C g/l | Fastness Properties | | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|-----------------|----------------------------------|------------------------|---|-----------|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10-B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | 20 ppm | | | | 50 ppm |
| | | | | | | | | | | | | | |
|  | T052220120 Yellow SP 1.80% | 60 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 3-4 | 4-5 4-5 | 2 | | |
|  | T053240118 Orange SP 1.20% | 60 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4-5 4 | 1 | | |
|  | T054560117 Red SP 1.20% | 60 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 4-5 4-5 4 | 4-5 4-5 | 2 | | |
|  | T058800126 Red Brown SP 1.00% | 100 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4 4 | 2 | | |
|  | T054130120 Bordeaux SP 1.30% | 100 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 3-4 5 | 5 5 | 1 | | |
|  | T058420216 Brown SP 1.00% | 60 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4 4 | 2 | | |
|  | T056300127 Blue SP 1.10% | 100 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4-5 4 | 1-2 | | |
|  | T056130118 Navy SP 2.00% | 100 | 6+ | 4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 4-5 4-5 | 4-5 4-5 | 1 | | |

Dyeing
on
Polyamide

Cololan SP
1:2 Metal Complex

Solubility at 90°C g/l

Fastness Properties

Light fastness
ISO 105 B02 -1994 (1/1 SD)

Washing fastness
ISO 105 C10:B (50°C)

Water Severe
ISO 105 E01

Sea Water
ISO 105 E02

Perspiration fastness (Alk.)
ISO 105 E04

Perspiration fastness (Acid)
ISO 105 E04

Chlorine fastness
ISO 105 E03

20 ppm
50 ppm

Rubbing
ISO 105 X12

Dischargeability
(Zn Sulfoxylate Formaldehyde)

T059390220

Silver SP

1.80%

70

6+

4
4-5
4-5

4-5
4-5
4-5

4-5
4-5
4-5

4-5
4-5
4-5

4-5
4-5
4-5

5
4-5

4-5
4

1

T059700158

Grey SP

1.10%

60

6+

4
4-5
4-5

4-5
4-5
4-5

4-5
4-5
4-5

4-5
4-5
4-5

5
4-5

4-5
4

1

T059400213

Black SP

2.90%

50

6+

4
4-5
4-5

4-5
4-5
4-5









4-5
4
4

4-5
4-5
4-5

5
5









4-5
4

2

| Dyeing on Polyamide | Levaset | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | Dry |
| | | | | | | | | | | | | 50 ppm | |
|  | T002880116 Yellow 4GN 1.30% | 80 | 6+ | 4-5 4-5 4-5 | 4 4-5 4-5 | 4-5 4 4 | 4-5 4 4-5 | 4-5 4-5 4-5 | 3-4 2-3 | 5 4-5 | 5 | | |
|  | T052220119 Yellow 2R 1.50% | 70 | 6 | 4 4-5 3-4 | 5 5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 5 5 | 4-5 | 4-5 | | |
|  | T053410116 Orange RN 1.80% | 80 | 6 | 4 4-5 4 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4 | 4-5 4-5 4-5 | 5 4-5 | 5 4-5 | 5 | | |
|  | T054400127 Red G 1.00% | 70 | 6+ | 4-5 4-5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 5 5 3-4 | 4-5 4-5 4-5 | 4 3 | 5 4 | 2-3 | | |
|  | T054130117 Bordeaux B 0.95% | 80 | 6 | 4-5 4-5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 5 5 3-4 | 4-5 4-5 4-5 | 4 3-4 | 5 4-5 | 2-3 | | |
|  | T005480116 Violet B 1.70% | 100 | 6 | 4 4 4-5 | 4-5 3-4 3-4 | 4-5 4 4 | 4-5 3 2-3 | 4-5 4 4-5 | 2 1 | 5 5 | 2 | | |
|  | T06660117 Blue 2R 2.00% | 100 | 6 | 4-5 3-4 4 | 5 4-5 4-5 | 4-5 4-5 4-5 | 5 4 3-4 | 4-5 4-5 4-5 | 3-4 2-3 | 5 5 | 2 | | |
|  | T006240116 Blue 5G 2.20% | 100 | 6+ | 4 4 4-5 | 5 4-5 4-5 | 4-5 5 4-5 | 5 4-5 4 | 4-5 5 4-5 | 3-4 2 | 4-5 4 | 2 | | |

| Dyeing on Polyamide | Levaset | Solubility at 90°C g/l | Fastness Properties | | | | | | Chlorine fastness ISO 105 E03 | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | | |
|--|---------------------------------------|------------------------|---|--|-----------------------------|--------------------------|---|---|----------------------------------|------------------------|---|-----------|-----|
| | | | Light fastness ISO 105 B02 -1994 (1/11 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | | 20 ppm | Dry |
| | | | | | | | | | | | | 50 ppm | Wet |
|  | T007240117 Green B 1.90% | 70 | 6+ | 4 3-4 4-5 | 4-5 4-5 4 | 3-4 4-5 4-5 | 4 4 3-4 | 4-5 4-5 4-5 | 4 3 | 5 4-5 | 2 | | |
|  | T056350117 Navy R 3.90% | 70 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 5 5 4-5 | 4-5 3-4 | 4-5 3-4 | 4-5 | | |
|  | T058480126 Brown G 1.40% | 80 | 6 | 4-5 4 4-5 | 4-5 5 4-5 | 4-5 5 4-5 | 5 4-5 4-5 | 5 5 4-5 | 4-5 4-5 | 5 4-5 | 4 | | |
|  | T058360119 Brown B 1.20% | 70 | 4-5 | 4 4-5 4-5 | 5 5 4-5 | 4-5 5 4-5 | 4-5 4-5 4-5 | 5 5 4-5 | 4-5 4 | 5 4-5 | 4 | | |
|  | T059700127 Grey G 1.00% | 70 | 5-6 | 4-5 4 4-5 | 4-5 3-4 4-5 | 4-5 4-5 4-5 | 4 4-5 4-5 | 5 5 4-5 | 3-4 3-4 | 5 4-5 | 4-5 | | |
|  | T059700129 Black B 3.50% | 65 | 6 | 4-5 4 4-5 | 4-5 4-5 4-5 | 4-5 5 4-5 | 4 4 4-5 | 4-5 5 4-5 | 4-5 4-5 | 4-5 4 | 2 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| Dyeing on Wool | Levasol | Solubility at 90°C g/l | Fastness Properties | | | | | | Rubbing ISO 105 X12 Dry Wet | Dischargeability (Zn Sulfoxylate Formaldehyde) |
|--|--|------------------------|--|--|-----------------------------|--------------------------|---|---|--------------------------------------|---|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | |
| | | | | | | | | | | |
|  | T002840116 Yellow 4G 1.40% | 100 | 6+ | 4 4-5 5 | 5 4-5 5 | 4-5 5 5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 | 5 |
|  | T002840117 Yellow CE 1.70% | 20 | 6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 | 4 |
|  | T003350116 Orange RG 1.40% | 40 | 6 | 4-5 4-5 5 | 4-5 5 5 | 3-4 4-5 5 | 4-5 5 5 | 4-5 4-5 5 | 4-5 5 | 4 |
|  | T004340117 Scarlet 3G 1.60% | 70 | 6 | 4 4-5 5 | 4-5 5 5 | 4-5 5 5 | 4-5 5 5 | 4-5 5 4 | 4-5 | 4 |
|  | T004500113 Red CE 1.70% | 100 | 5-6 | 4 4-5 4-5 | 4-5 4-5 5 | 4 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4 | 3-4 |
|  | T004740116 Red 6G 1.20% | 50 | 6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 5 | 4-5 4 | 4 |
|  | T004550116 Red GN 1.80% | 40 | 5-6 | 3-4 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4 3-4 | 3-4 |
|  | T004390116 Red B 1.00% | 100 | 6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4 4 3 | 4-5 4-5 3-4 | 4-5 4-5 4 | 4 3-4 | 5 |

| Dyeing on Wool | Levasol | Solubility at 90°C g/l | Fastness Properties | | | | | | Rubbing ISO 105 X12 | Dischargeability (Zn Sulfoxylate Formaldehyde) | |
|--|---|------------------------|--|--|-----------------------------|--------------------------|---|---|------------------------|---|-----|
| | | | Light fastness ISO 105 B02 -1994 (1/1 SD) | Washing fastness ISO 105 C10:B (50°C) | Water Severe ISO 105 E01 | Sea Water ISO 105 E02 | Perspiration fastness (Alk.) ISO 105 E04 | Perspiration fastness (Acid) ISO 105 E04 | | | Dry |
| | | | | | | | | | | | |
|  | T004020116 Red 5B 0.75% | 40 | 6 4-5 4-5 4 | 4-5 4-5 5 | 4-5 4-5 5 | 4 4-5 3-4 | 4-5 4-5 3-4 | 4-5 4-5 4-5 | 4-5 4 | 4-5 | |
|  | T006330318 Blue 3R 1.90% | 100 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 2 | |
|  | T006991117 Blue 3G 1.50% | 50 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4 | 2 | |
|  | T006760116 Blue CE 1.90% | 40 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4 3-4 | 1-2 | |
|  | T016100116 T. Blue 5G 1.50% | 100 | 5-6 | 2 4-5 3 | 2 4-5 4-5 | 4 4-5 3-4 | 4-5 4-5 3-4 | 4 4-5 4-5 | 3-4 3-4 | 3 | |
|  | T006650116 Navy CE 3.00% | 100 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 3-4 | 4-5 4 3-4 | 4-5 4-5 4-5 | 4 4 | 3-4 | |
|  | T009800117 Black CE 4.00% | 100 | 5.6 | 4-5 4-5 4 | 4-5 4-5 4-5 | 4-5 4 3-4 | 4-5 4 3-4 | 4-5 4-5 4-5 | 4 3-4 | 3-4 | |
|  | T009800129 Deep Black CER 150% 4.00% | 100 | 5-6 | 4-5 4-5 4-5 | 4-5 4-5 4-5 | 4-5 4-5 3-4 | 4-5 4 3-4 | 4-5 4-5 4 | 4 4 | 3-4 | |



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