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SPECIAL COLORS FOR SPECIAL PURPOSES.

This flyer will give you an informative overview of the many ways you can use DragoColor® colorants for special purposes. The recommendations listed here are based on analyses that were performed at the Symrise color department. Upon request, stability tests can also be conducted using your sample. The standard light test is performed using 2 x 300 watt Osram Ultra-Vitalux bulbs for a period of 72 hours. We generally recommend selecting opaque packaging material. These recommendations are merely suggestions, however, since the process of formulating the finished products listed below entails a wide variety of different variables. The nature and quality of the raw materials you select, packaging and storage conditions all have a direct impact on the stability of the colorants which are used. We strongly recommend that you conduct tests of your own.

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Our complete Dictionary of Colors can be found online at www.symrise.com.

1. Household cleansers

1.1 Hand dishwashing liquid

Food dyes are the preferred colorant for use in dishwashing liquids. To create fluorescent effects, select 656521 cosmetic dyes Yellow extra (C.I. 45350), water soluble, powder or 656533 Pyranine (C.I. 59040), water soluble, powder. These colorants can be combined with each other. Recommended dose: approx. 100 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656601	Food dyes Brilliant Blue FCF 85%	E 133/C.I. 42090	blue, powder, water soluble
100290	Food dyes Quinoline Yellow 70%	E 104/C.I. 47005	yellow, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656521	Cosmetic dyes Yellow extra	C.I. 45350	yellow, powder, fluorescent, water soluble
656533	Pyranine, Green Yellow	C.I. 59040	green, powder, fluorescent, water soluble
656534	Cosmetic dyes May Green	C.I. 47005 + C.I. 61570	green, powder, water soluble
656674	Food dyes Green 114	E 102 + E 133/ C.I. 19140 + C.I. 42090	green, powder, water soluble
656542	Green POV	C.I. 42090 + C.I. 59040	green, powder, fluorescent, water soluble

1.2 Dishwasher detergents

656839 Blue (C.I. 61585), water soluble, powder is well-suited for powders and tabs.

1.3 Acidic cleansers

Because of their tendency to form sediment, the use of water dispersible pigments is only possible if the finished product is highly viscous. Please note that water dispersible pigments can cause discolorations in ceramics which have a porous or cracked surface. Recommended dose: approx. 20-100 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656842	Cosmetic dyes Blue	C.I. 74160	blue, powder, water dispersible
656585	Acid Blue	—	blue, powder, water soluble
100290	Food dyes Quinoline Yellow 70%	E 104/C.I. 47005	yellow, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656534	Cosmetic dyes May Green	C.I. 47005 + C.I. 61570	green, powder, water soluble
656555	Cosmetic dyes Blue Green	C.I. 61570	green, powder, water soluble
656851	Green	C.I. 74260	green, powder, water dispersible
100300	Food dyes Ponceau 4R 70%	E 124/C.I. 16255	red, powder, water soluble
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble

Recommended dose when used with *formic acid*: approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656842	Cosmetic dyes Blue	C.I. 74160	blue, powder, water dispersible
656851	Green	C.I. 74260	green, powder, water dispersible
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble

Recommended dose when used with 6% concentrated *hydrogen chloride*: approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble

Recommended dose when used with 8.6% concentrated *phosphoric acid* or 4% concentrated *hydrogen chloride* and 5% concentrated *phosphoric acid*: approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656585	Acid Blue	—	blue, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656588	Cosmetic dyes Yellow E	C.I. 18965	yellow, powder, water soluble
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble

1.4 Alkaline cleansers

Because of their tendency to form sediment, the use of water dispersible pigments is only possible if the finished product is highly viscous.

Please note that water dispersible pigments can cause discolorations in ceramics which have a porous or cracked surface. Recommended dose: approx. 20-100 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656585	Acid Blue	—	blue, powder, water soluble
656800	Cosmetic dyes Yellow extra	C.I. 13015	yellow, powder, water soluble
656844	Metanil Yellow	C.I. 13065	yellow, powder, water soluble
656533	Pyranine, Green Yellow	C.I. 59040	green, fluorescent, powder, water soluble; not suitable for acidic media
656534	Cosmetic dyes May Green	C.I. 47005 + C.I. 61570	green, powder, water soluble
656555	Cosmetic dyes Blue Green	C.I. 61570	green, powder, water soluble
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble

Recommended dose when used with 6% *potassium pyrophosphate* (pH 9.7): approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656585	Acid Blue	—	blue, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656588	Cosmetic dyes Yellow E	C.I. 18965	yellow, powder, water soluble
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble

Recommended dose when used with 6% *potassium pyrophosphate* and 1.5% *ammonia* (25% solution): approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656585	Acid Blue	—	blue, powder, water soluble
656588	Cosmetic dyes Yellow E	C.I. 18965	yellow, powder, water soluble
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble

1.5 Toilet cleansers

Recommended dose: approx. 10-100 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656601	Food dyes Brilliant Blue FCF 85%	E 133/C.I. 42090	blue, powder, water soluble, opaque packaging recommendable
656585	Acid Blue	—	blue, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656588	Cosmetic dyes Yellow E	C.I. 18965	yellow, powder, water soluble
656555	Cosmetic dyes Blue Green	C.I. 61570	green, powder, water soluble

1.6 Liquid soap

Recommended dose: approx. 100 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
100290	Food dyes Quinoline Yellow 70%	E 104/C.I. 47005	yellow, powder, water soluble
656534	Cosmetic dyes May Green	C.I. 47005 + C.I. 61570	green, powder, water soluble
656555	Cosmetic dyes Blue Green	C.I. 61570	green, powder, water soluble

1.7 Scouring powder

Blend dry scouring powder with 656533 Pyranine (C.I. 59040), powder, water soluble, fluorescent. The color develops upon contact with water. Recommended dose: 400 g/ton.

1.8 Decalcifiers

Formulation with 25% lactic acid and 10% citric acid: the only stable colorant is 100290 – food dye Quinoline Yellow 70% (E 104/C.I. 47005), water soluble, powder. Recommended dose: approx. 20-50 g/ton.

2. Disinfectants

A good product for general use in *blue rinses* is 656601 food dye Brilliant Blue FCF 85% (E 133/C.I. 42090), water soluble, powder.

For mobile *toilet facilities* (airplanes, trains, camping equipment), 656839 Blue (C.I. 61585), water soluble, powder can be used.

Water soluble dyes are used for *in-bowl cleansers*, since pigments and water dispersible pigments can cause discoloration in older ceramic toilet bowls with porous surfaces.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656873	Cosmetic dyes Blue Violet	C.I. 60725	blue violet, powder, oil soluble
656871	Cosmetic dyes Turquoise	C.I. 61565	turquoise, powder, oil soluble
656870	Yellow	C.I. 12700	yellow, powder, oil soluble
656869	Brown	C.I. 12010	brown, powder, oil soluble
656868	Blue	C.I. 61554	blue, powder, oil soluble

3. Detergents and laundry products

The integrity of the color can suffer depending on the formulation of the detergent, its concentration in the load of laundry, the temperature of the water used and the concentration of dye in the detergent, especially after multiple washes. For this reason, the dose of the colorant should total less than 0.01 %. Our stability tests were performed at a dose of 0.002% (= 20 g/ton). Opaque packaging is recommended.

3.1 Liquid detergent/fabric softener

Because of their tendency to form sediment, the use of water dispersible pigments is only possible if the finished product is highly viscous.

Recommended dose: approx. 20 g/ton.

Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656842	Cosmetic dyes Blue	C.I. 74160	blue, powder, water dispersible
656585	Acid Blue	—	blue, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
656588	Cosmetic dyes Yellow E	C.I. 18965	yellow, powder, water soluble
656845	Yellow	C.I. 11680	yellow, powder, water dispersible
656851	Green	C.I. 74260	green, powder, water dispersible
656589	Brilliant Pink	C.I. 18050	red, powder, water soluble
656859	Rhodamine EB4	C.I. 45100	pink red, fluorescent, powder, water soluble
656595	Cosmetic dyes Red	C.I. 12490	red, powder, water dispersible
656860	Black	C.I. 77266	black, powder, water dispersible

3.2 Detergent powder

The colorants listed under 3.1 can be used here as well. Normally, 5% colored granulate is added to the detergent. The following methods are used to color granulate for white or lightly colored detergent powders:

a) The detergent slurry is colored (recommended dose: 0.005–0.2% water soluble colorant) and then dried with the spray drier. The result: evenly colored granulate.

b) One or more powdered components in the detergent (such as tripolyphosphate, sodium silicate or the detergent agent itself) are colored via dry blending with colorant powder or by spraying with colorant solution (recommended dose: 0.005–0.2%). The result: superficial coloring only; occasionally the coloring is irregular.

c) An anionic or nonionic tenside with a melting point > 35°C is colored in melted form (recommended dose: 0.005–0.2%) and granulated after it hardens. The result: thoroughly colored granulate, which is interesting in phosphate-free detergents.

Note: Granular colorants in detergents have to have a certain size (diameter of 0.5–1.5 mm) so that they do not separate from other granules with a different density. Furthermore, care must be taken to ensure that the moisture content of the finished product is as low as possible so that the colorant does not bleed onto the uncolored detergent powder.

4. Products for cars

4.1 Windshield cleaning products/car lock de-icer

In general all water soluble food dyes and cosmetic colorants can be used. Recommended dose: approx. 100 g/ton.

+	+	+	+
Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656601	Food dyes Brilliant Blue FCF 85%	E 133/C.I. 42090	blue, powder, water soluble
656477	Blue	C.I. 42045	blue, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble
100290	Food dyes Quinoline Yellow 70%	E 104/C.I. 47005	yellow, powder, water soluble
656674	Food dyes Green 114	E 102 + E 133/ C.I. 19140 + C.I. 42090	green, powder, water soluble
100291	Food dyes Sunset Yellow 85%	E 110/C.I. 15985	orange, powder, water soluble
100292	Food dyes Amaranth	E 123/C.I. 16185	red, powder, water soluble
656271	Cosmetic dyes Violet III	C.I. 16185 + C.I. 42090	violet, powder, water soluble

4.2 Antifreezes

Recommended dose: approx. 100 g/ton.

+	+	+	+
Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
656839	Blue	C.I. 61585	blue, powder, water soluble
656585	Acid Blue	—	blue, powder, water soluble

5. Candles and wax

As is the case with in-bowl toilet cleansers, water soluble colorants are used for candles and wax as well (see point 2, “Disinfectants”).

6. Inks

Inks for fountain pens or felt-tip pens can be made using highly concentrated water soluble colorants. A low salt content is necessary to avoid crystallization in the tip of the pen. The food dyes which have been approved for use in the EU are particularly recommendable (recommended dose: 2.5–3.5%).

Black ink can be created by combining 1% 100296 Tartrazine 85% food dye, 5–6% 656813 Ponceau 4R 80% food dye and 4% 100294 Patent Blue V 80% food dye or 656601 Brilliant Blue FCF 85% food dye.

617580 Deep Blue (recommended dose: 1–2.5%) has been proven useful in brightening classic indelible ferrogallic ink (formulation available upon request).

7. Chemicals

7.1 Sodium perborate

In 5% solution 656800 Yellow (C.I. 13015), water soluble, powder was stable for 4 weeks.

7.2 Phosphoric acid

In 20% solution, phosphoric acid was stable for 3 weeks in a window test:

+	+	+	+
Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
100290	Food dyes Quinoline Yellow 70%	E 104/C.I. 47005	yellow, powder, water soluble
100296	Food dyes Tartrazine 85%	E 102/C.I. 19140	yellow, powder, water soluble

In 50% solution, phosphoric acid was stable for 3 weeks in a window test:

+	+	+	+
Product Number	Name	E- and Color Index Number	Color, Delivery form, Solubility
617580	Blue II	C.I. 42780:1	blue, fine granular, water soluble