



PHOSCON FR-510

Durable flame-retardant for polyester fiber

Phoscon FR-510 is non-halogen type flame retardant and it contains phosphorus compound without halogens.

It endows polyester fabrics with highly durable and excellent flame retardant effect by exhaustion and padding method. Especially it will not generate so much smoke or fume during curing process in padding method.

GENERAL PROPERTIES

Appearance :	White liquid
Main component :	Phosphorus compound
Ionic activity :	Weakly anionic
pH :	Neutral ~ Weakly acidic
Solubility :	Easily dispersible in cold water

CAUTION

1. Dilution by hot water around 40-80 degree C may destroy dispersion of this product, however, if temp. will be over 100 degree C, it will dissolve again.
2. In case of using Beam dyeing, it may be clogged by sedimentation of the product. The dosage 2-4% o.w.f for Beam dyeing machine may be able to use but higher dosage such as over 8-10% o.w.f dosage may cause clogging problem which cause uneven dyeing

CHARACTERISTICS

Phoscon FR-510 has following characteristics.

1. Durable flame retardant without halogens.
2. It imparts wash durable and superb flame retardant effect on polyester and CD polyester fabrics.
3. This product is applicable by exhaustion method by using Jet dyeing machine in combination with disperse dyes.
4. In case of using dyeing system, influence to color is less than conventional type flame retardant.
5. Phoscon FR-510 is not hydrolyzed easily and does not damage finished cloth strength by hydrolysis.

APPLICATION

1. Dilution

Dilute with cold water to the concentration to be desired. Don't use hot water around 40-80degree because hot water destroy dispersion and generate agglomeration and sedimentation of product.

2. Standard dosage

Use level of this product differs depending on the structure, configuration or treating methods of the fabrics, so that a sufficiently preliminary test is needed for the determination of use level.

Generally, 5% ~ 25%(o.w.f.) of Phoscon FR-510 is used in case of exhaustion method by using Jet dyeing machine.

Beam dyeing machine is not recommended as exhaustion method.

However, in case of low dosage such as 2-4% o.w.f may be used after check agglomeration and sedimentation test.

Agglomeration may cause clog trouble and may cause uneven dyeing.

Remarks on use

It may affect the miscibility with disperse dyes, color fastness to the light or color shade, so that use it after the investigation about these affections by prior tests.

When used in a single dyeing bath by exhaustion method together with disperse dyes, it may decrease the color yield, so that the preliminary test is necessary.

After diluted by water, the solution tend to make agglomeration and sedimentation. So it need to keep good agitation during finishing process.

To avoid dropping fastness, bleed, uneven FR effects, it is necessary to wash after treated by Phoscon FR-510.

Keep the containers tightly sealed after use in the range from 5°C to 40°C and avoid exposure to direct sunlight.

As it is dispersion type product agitate it before use by all means.

Store it between 5°C and 40°C and avoid exposure to direct sun-light.

EXAMPLE OF USE

1. Exhaustion method in dyeing bath.

Test fabric : 100% regular polyester woven fabric

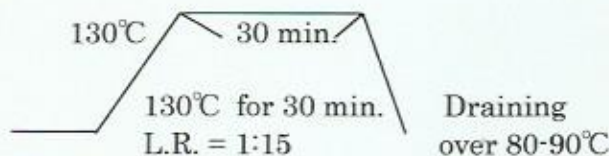
Formula :

Disperse dyes	x % (o.w.f.)
Phoscon FR-510	8 % (o.w.f.)
Disper N-700 ^(*)	0.5 g/L
Acetic acid(90%)	0.3 cc/L

^(*) Disper N-700: Level dyeing agent(Meisei Chemical)

Treating condition :

1) Dying (exhaustion)



2) Reduction clearing

Treating formula	{	Laccol NB ^(*)	2 g/L
		Soda ash	2 g/L
		Hydro sulfite conc.	2 g/L
		Liquor ratio = 1:15	
		90°C for 15 min.	

- 3) Rinse
- 4) Squeeze
- 5) Dry 110°C × 2 minutes
- 6) Final set 170°C × 1 minute

* Draining temp. should be over 80-90 degree C, because lower temp. generate agglomeration and sedimentation of product.

Results :

	45° Micro-burner method			45° Coil method
	After flame time (sec.)	After glow time (sec.)	Burned area (cm ²)	Number of flame touch (times)
Initial	0	0	5	5
After HL	0	0	5	5
After DC	0	0	5	5

Evaluation methods :

Flame retardant effect ; 45° Micro-burner method and 45° Coil method.

HL ; Home laundering according to the Japanese Law of Fire

DC ; Dry cleaning according to the Japanese Law of Fire.

2. Pad application

Test fabric : 100% regular polyester woven fabric

Recipe : Phoscon FR-510 10%

Treating condition : 1) Pad 1dip·1nip Wet pick up 70%

2) Dry 110°C × 2 minutes

3) Cure 180°C × 1 minute

4) Soaping Recipe { Laccol NB 2g/L
Soda ash 2g/L

Bath ratio 1 : 15

Time & Temp. 80°C × 15 minutes

5) Hot rinse · Spin-dry

6) Dry 110°C × 2 minutes

7) Cure 180°C × 1 minute

Results :

	45° Micro-burner method			45° Coil method
	After flame time (sec.)	After glow time (sec.)	Burned area (cm ²)	Number of flame touch (times)
Initial	0	0	5	5
After HL	0	0	5	5
After DC	0	0	5	5

Evaluation methods :

Flame retardant effect ; 45° Micro-burner method and 45° Coil method.

HL ; Home laundering according to the Japanese Law of Fire

DC ; Dry cleaning according to the Japanese Law of Fire.

FOR YOUR PRODUCTION

Above suggestions described concerning uses and data in this bulletin are based on our laboratory tests, therefore users should make their own tests to determine the suitability of these products for their own particular purpose.

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