

# MATCH POINT

PIGMENT'S PRINTED FABRIC  
TRADITIONAL AND INK-JET PRINTING METHODS



SUSTAINABILITY  
PROJECT



## PRINTED FABRICS WITH PIGMENT DYES: A VERY GOOD CHOICE

**Pigment print** has always been used for a certain type of articles (curtains, bed-clothes...) but it is still little diffused for clothes due to the wrong opinion that pigments have no suitable colourfastness standards and they give a non-elastic final result.

**Nowadays pigments** are able to satisfy any requirements, also the most exigent like, and sometimes even better, reactive dyes.

For example, in the table below, you can compare three types of colours used to print cellulosic fibers:

	DIRECT DYES	REACTIVE DYES	PIGMENT DYES
<u>COLOUR FASTNESS</u>			
Washing	Medium - low	Very good	Very good
Dry cleaning	Very good	Very good	Good - moderate
Perspiration	Moderate - low	Very good	Very good
Chlorinated water	Good - moderate	Sufficient - bad	Very good
Rubbing	Good	Good - limited	Good - limited
Light	Good - limited	Good - limited	Very good - good
Nitrogen oxide	Good - limited	Good - limited	Very good
Hydrolysis	Good	Sufficient - bad	Very good
<u>HAND OF FINISHED FABRIC</u>	Good - very good	Good - very good	Good - sufficient

Pigments have a **very good covering** and uniformity standards not only when used to print pure cellulosic fibers but also when these are mixed with other natural or syntetic fibers. The coverage is even avoiding the mélange effect that can be noticed when used direct or reactive colours.

## WATER: A VALUABLE COMMODITY TO BE PRESERVED ATMOSPHERE: LESS EMISSIONS OF CO2

The fabrics, after been printed have to be vaporized and this activity requires water and energy. To produce 100 kgs of **steam** are required approximately 2 cubic meters of methane. An industrial vaporization uses on average 400 kgs of steam to produce 50 mts of fabric.

### PIGMENTS DO NOT REQUIRE ANY VAPORIZATION

To **wash** a piece of 50 mts printed with reactive colours a quantity of water from 300 to 600 liters is required, of which at least one third must be at 95 degrees; to reach this temperature about 3 cubic meters of methane are consumed and they are transformed in carbonic anhydride emitted in the atmosphere.

### PIGMENTS DO NOT REQUIRE ANY WASH

Pigments are easily **fixed** with hot air, the same used for post-wash drying of direct and reactive colours.

### PIGMENTS DO NOT CONSUME WATER

**Detergents** used for the post-print washing have to be purified before discharging.

### PIGMENTS DO NOT RELEASE POLLUTANTS

Pigments do not contain banned substances by current regulations in term of **ecology and safety of textile products** (aromatic amines, carcinogenic and allergenic dyes, phenols, polycyclic hydrocarbons and phthalates)

### PIGMENTS ARE ECOLOGICAL



## WHICH IS THE QUANTITY OF WATER USED TO PRINT 50 MTS OF FABRIC?

	PIGMENT DYES	DIRECT DYES	REACTIVE DYES
PRINTING PASTE	average <b>8</b> liters	average <b>8</b> liters	average <b>8</b> liters
STEAMING	<b>0</b> liters	average <b>400</b> liters	average <b>300</b> liters
WASHING	<b>0</b> liters	average <b>500</b> liters	average <b>500</b> liters

USING PIGMENT DYES IT IS AVOIDED THAT AT LEAST 800-900 LITERS OF WATER END UP IN THE DRAINS AND MUST BE PURIFIED

## WHICH IS THE QUANTITY OF CO2 RELEASED IN THE ATMOSPHERE TO PRINT 50 MTS OF FABRIC?

	PIGMENT DYES	DIRECT DYES	REACTIVE DYES
cubic meters of methane for vaporization	<b>0</b>	2,4	1,8
cubic meters of methane for washing	<b>0</b>	1,5	3,0
kilograms of co2 produced from burnt methane	<b>0</b>	3,9 mc of methane equal to <b>7,4 kg of co2</b>	4,8 mc of methane equal to <b>9,1 kg of co2</b>

USING PIGMENT DYES IT IS AVOIDED THAT AT LEAST 7,5 KGS OF CO2 ARE EMITTED IN THE ATMOSPHERE

## UNLOADED CHEMICAL PRODUCTS DURING THE WASHING OF 50 MTS OF FABRIC

	PIGMENT DYES	DIRECT DYES	REACTIVE DYES
DYE	<b>NO</b>	YES	YES
THICKENER	<b>NO</b>	YES	YES
UREA	<b>NO</b>	YES	YES
CARBONATES	<b>NO</b>	NO	YES
OTHER PRODUCTS	<b>NO</b>	YES	YES

PIGMENTS ARE MORE ECOLOGICAL THAN OTHER TYPE OF COLOURS