

General Considerations Regarding Dye-sub Textile Processing and Safety

热升华纺织品加工及安全指南

1. Tolerance 公差

All textiles, and in particular knitted fabrics, are subject to certain production deviations regard to weight, color, width and other properties. In order to keep such deviations to a minimum, efforts should always be made to use fabrics from only one production batch in a particular process. The same product should choose the same side as the printing side.

所有的纺织面料，特别是针织类面料，其克重，颜色，门幅及其他一些特性，都会有一定的生产公差。为了使这样的公差影响减低到最小程度，应尽量将同一批次的面料用于同一个项目/订单。同一款产品必须选择同一个面作为喷绘面。

2. Transport and storage 运输和仓储

In order to prevent damage (e.g. through pressure points, bending, etc.), rolls should be transported and stored in a fully horizontal position. Excessive humidity or dryness can seriously affect coating properties, particularly in the case of fabrics coated for digital direct printing. Besides, we recommend using hard tubes or general package with pallet or wooden box for LCL transportation.

为了防止损坏（比如受压，弯折等），卷材必须水平存放和运输。湿度过高或者过度干燥都会严重影响表面涂层的特性，特别是直喷面料表面的涂层。零单运输建议纸筒包装或普通包装托打盘或木箱。

3. Defect tolerances 疵点允差

Certain defects are unfortunately unavoidable during textile production. Small stains, stitch abnormalities and stop marks are inherent in these textiles and should be accepted. The printing process should always be closely monitored in order to prevent damage to the printer or the print head. We use defect map to help customers understand the defect position more directly and detailedly. Besides, due to the unique production properties, unfixed length in a reasonable range must be accepted.

某些疵点在纺织品的生产过程中是不可避免的。小污渍，织造疵点，停车档等都是这些纺织品经常会出现的，因而也应该被接受。纺织品的喷绘过程也应当被密切监管从而防止损坏打印机或打印头。我们用疵点地图帮助客户更加直接的了解疵点情况。由于Textile独特的生产工艺特性，一定范围内的不定码的包装是必须被接受的。

4.a) Shrinkage due to washing or heat 漂洗或加热过程引起的收缩

Synthetic fabrics can shrink when washed or exposed to heat. The degree of shrinkage varies according to the different material, the structure and the process (washing at 40°C, steaming, calendaring). Minimized shrinkage is always an important parameter in our production processes. We heat-set all of our fabrics at 190-210°C. After heat-setting, the dimensions of the fabric are fixed and no longer change. However, the sublimation process once again requires heat, which may affect our previous heat-setting. Normally, sublimation process will result in shrinkage of 1% to 3% in length and width. This percentage of shrinkage can not be avoided and the deviation of 1% to 3% of the original measurements is within normal textile tolerances. Shrinkage is a direct result of calendaring / hot melt process, after which there will be no further change.

化纤织物在洗后或接触到高温后会收缩。收缩的程度根据不同材料、结构、操作过程（40°C洗涤，汽蒸，压烫）而各不相同。把收缩率控制在最小范围始终是我们生产过程中的一个重要指标。我们所有的面料，基本上在190-210°C范围内进行热定型。在热定型之后，面料的结构尺寸就会基本稳定而不再变化。然而，在升华过程中再一次加热时，可能会影响原来的热定型。通常情况下，热升华过程可能会导致长度和宽度上1-3%的收缩。通常情况下，面料收缩是不可避免的，1-3%的收缩率变化也是在面料正常允许的范围之内。收缩是压烫/固色过程的直接结果，之后就不会有进一步的变化。

4.b) Elongation 伸长率

Additional problems can arise when fabric must be held under tension during the fusing process (for example in order to prevent wrinkling). In this case the fabric will not shrink during fusing but be elongated. The situation is further complicated by the fact that the tension associated with calendaring can vary differently (the roll becomes lighter). The elongation is, however, not permanent; it relaxes over the following hours and days if the fabric is stored and not under tension (i.e. off the roll).

当织物在固色过程中必须保持一定张力时（比如为了防止起皱），其他的问题可能会出现。在这种情况下，织物不会收缩反而会被拉长。由于压烫辊的张力变化（比如打印卷材在使用过程中变轻）会使这个情况更加复杂。然而，织物的伸长也并不是永久的，产品从辊轴上取下后，在没有张力的作用下，经过几个小时或者几天会松弛下来。

The following steps can be taken to minimize this effect:

可以采取下面的几个步骤来减轻这类影响：

--Calendering without tension or stretching.

压烫过程无张力或者无拉伸

--Storing lengths of fabric without tension or stretching for approx. 24 hours before further processing

织物做进一步处理前，在不受张力或者拉伸力作用的条件下储存24小时

--Using heavier/stronger fabrics

使用高克重或者更紧实的织物

Due to the many factors involved, this effect is not always observed and particularly difficult to monitor.

由于涉及众多因素的影响，这种影响并不总是能被观察到，而且特别难被监测。

5. Flame-retardant fabrics 阻燃织物

Flame-retardant fabrics are either manufactured using flame-retardant yarns or are treated for flame retardant during finishing. Assessments and certificates are provided for the state of the fabrics at the time of dispatch. Due to the variety of possible treatments (laminating, washing, steaming, calendaring,...) and the many different printing techniques and inks available (screen printing, transfer printing, direct printing with dispersion inks, UV-curable inks, solvent inks,...), we are not in a position to indicate the degree of flame retardancy of the finished products. In general it can be said that fabrics made of flame-retardant yarns have permanent flame-retardant properties (which cannot be washed out). While fabrics which are treated subsequently for flame retardancy should not be washed so as to retain the flame-retardant properties. In order to eliminate this doubt, we recommend testing the fabrics after processing.

阻燃织物是在生产过程中使用了阻燃纱线或者是在后处理过程中进行了阻燃处理。产品测试报告可在交货时由实验室提供。由于各种各样的可能的处理（例如复合，水洗，汽蒸，压烫.....）和不同的喷绘技术和墨水（使用分散墨水的丝印，转印，直喷，UV墨水喷绘，溶剂墨水喷绘.....），我们并不能确定最终成品的阻燃程度。一般来说，由阻燃纱线生产而成的织物具有永久的阻燃特性（这种情况是不会被水洗掉的）。如果织物是在后整理过程中做了阻燃处理时，为保持织物的阻燃性能，织物不能水洗。若有时不能确定加工后成品的阻燃水平，我们建议对加工后的面料做一次测试。

6. Calendaring 压烫

Calendering used in transfer printing or the fusing of dispersion should generally be equipped with air suction equipment. Finishing and ink residue and also residual moisture in the fabric or the finish can lead to the evaporation and increased humidity. In order to prevent soiling of the calendaring mat, sufficiently thick protective paper should accompany the run and the fusing temperature should not exceed 195°C (195°C is the actual fixation temperature, the temperature show in the machine may higher than it). Regular maintenance and cleaning of the calendar helps to prevent soiling. To maintain an appropriate temperature and humidity in the printing room is necessary, and for detailed requirements please refer to printer maintenance guide.

在转印或者分散升华过程中用到的压烫过程，一般都需要配备抽风设备。飞墨以及织物中的水分残留和压烫过程导致的水分蒸发会使得空气湿度增加。为了防止压烫毛毯被污染，在加工过程中需使用足够厚的衬纸，并且升温温度不能超过195°C（195°C指的是实际的发色温度，机器显示温度可能会比这个高）。定期维护和清洗压烫辊可以帮助减少污染。给打印车间维持一个合适的温湿度是必须的，具体要求参照打印机维护保养要求。

7. Subsequent cutting (dividing of rolls) 后期切割（分卷）

And subsequent cutting of large-width rolls (e.g. 310cm into three 103cm sections) is done at extra cost and at the risk of customer. The cuts are made on the finished roll and can vary up to 1cm in either direction. The repetition of the variation with each revolution of the roll leads to a wavy edge which must always be recut or sewn during further processing. Divided rolls must also be accepted.

宽幅产品的后期分卷切割（如把3.1m门幅产品切割成3卷1.03m门幅产品）会增加额外成本，并且由此造成的风险由客户承担。切割分卷在已经完成的成品上进行，门幅方向会有1cm的偏差。重复的分卷带来的变化可能会导致产品卷出现波浪边，波浪边需要在随后的过程中进行再一次切边或者修边。因这种情况造成的分割卷必须被接受。（此条款适用于客户要求，将既有宽幅分卷分切成更窄门幅的情况）。

8. The color "nature white", whiteness关于颜色“本白”

The color "nature white" is equivalent to the original color of the yarn, i.e. the fabric is not dyed in order to achieve a particular color. If the original color of the yarn changes, the color "nature white" also changes for this article. All the whiteness we tested is based on the lab condition and test method. Different test instrument s or test methods will cause different result.

“本白”等同于纱线的原始颜色，也就是说织物为了得到特定的颜色而没有经过染色。如果纱线的原始颜色发生了变化，“本白”也随之发生变化。我们所测的白度均基于我们实验室的条件和测试手段，不同的测试仪器或测试手段会造成结果的差异。

9. Environment and health impact 对环境与健康的影响

All the raw materials and auxiliaries are conformed to the relevant international environmental standards, it can be assumed that, given appropriate processing, no health risk is involved.

我们所使用的材料和助剂都符合相关的国际环保标准。因此，我们可以认为，只要经过正确的处理，没有任何健康风险。

--- Vapors posing a potential health risk 蒸汽构成了潜在的健康风险

Providing that appropriate care is taken during processing, no health risks are posed in this context. The following specifications must be met: No fabric shall be subjected to treatment at a temperature of over 210 °C, as decomposition and the formation of possible corrosive or otherwise damaging vapors cannot be ruled out under such severe thermal stress. Air suction equipment is absolutely essential for any fusing or calendaring processes, as the finishes and dyes themselves also contain additives. Please refer to the safety data sheet provided by the ink manufacturer, which should include information on potential hazards and preventive measures.

若提供适当的保护，加工过程中一般就不会存在健康风险。同时,加工过程应该符合以下情况：没有面料需要进行超过210 °C的处理，超过210 °C时，涤纶织物中的腐蚀性物质会在这样的热压力下分解挥发出来。在任何形式的压烫过程中，抽风装置是必须的，因为在升温和压烫过程中面料上的涂层助剂和染料会挥发化学物质。请参照墨水厂商提供的安全数据表，其中应该包括潜在的风险和预防措施信息。

--- Residue on calenders, etc.压烫辊上的残留物质

(Residues on the processing machines cannot be ruled out in the case of fabrics with a coating directly on the fibers that is designed to improve printability, especially when large quantities are being processed.) The use of sufficiently thick protective paper along with regular and thorough cleaning is therefore always required. It should be noted that the dye itself also leaves a residue during fusing.

为了提高织物喷绘性能而做涂层的情况下，加工处理这类涂层面料的设备上有残留物质是不能避免的，尤其是大量的涂层织物需要加工处理时。因此足够厚的衬纸和定期全面的清洗是非常有必要的。需要注意的是，在固色升华过程中，染料本身也会有残留。

10. Printing results, colorfastness, moiré 喷绘效果，色牢度，水波纹

Printing results and colorfastness (friction resistance, light fastness, washability, colorfastness to perspiration) are always the combined result of all the components that are involved (printer, ink type, ink manufacturer, drying, fusing, transport, storage, environmental factors [humidity, etc.) and cannot be generally guaranteed. For this reason it is imperative that every new combination and every change in a component be tested by the user. ICC profile is advised to be done again when replacing a new batch of products or inks.

喷绘效果和色牢度（耐摩擦，耐光性，可洗性，汗渍色牢度）总是涉及到所有要素的组合结果（打印机，墨水种类，墨水生产厂商，烘干，固色，运输，存储，环境因素、湿度等），通常不能保证。基于这个原因，当各要素重新组合或者某个要素发生改变的时候，用户必须重新进行测试。我们建议更换不同批次的产品或墨水后必须重新做ICC曲线。

Moire can result with direct inkjet printing the screen structure and the fabric structure coincides. No changes to the fabric are possible in order to influence this effect, thus no liability can be accepted for moire. Steps that can be of help include changing the printing resolution, checking/adjusting the orientation of the printing heads, and/or printing on the other side of the fabric.

当直接喷墨打印的墨点排列结构和织物结构一致时就可能导致水波纹。不改变织物本身也可以去改善这种结果，因而对于水波纹，我们不负责任。可以帮助改善的措施包括改变打印精度，校验/调整打印头的位置，或者在织物的另一面打印。

11. Migration/Color transfer迁移/颜色转移

When printing with sublimation inks there is a risk of migration of the dye or "color transfer" (transferring of the ink when folded/stored) also after fixation. Both – the migration and the "color transfer" – can be increased or reduced by combining different finishes (coatings)/inks. This process can not be influenced by the material of Soyang alone and must be tested for each combination. As the migration/the "color transfer" is mainly due to unfixed ink, good fixation and subsequent washing of the fabric will reduce these effects.

在使用热升华墨水喷绘时或者在固色之后，都会存在染料迁移或者“颜色转移”的风险（墨水在织物折叠/放置时的转移）。迁移和“颜色转移”随着不同的产品（涂层）/墨水的结合而有增减。这个过程并不单单受到Soyang材料的影响，因而需要对每一次的材料-墨水结合进行测试。鉴于这种迁移/“颜色转移”主要是由墨水的固色不完全引起，因此，良好固色和后续的水洗会降低这些影响。