

# **AUDIT REPORT MANGO - DETOX PROJECT**

**Facility name:**

**Knitting Factory**

**Audit Data: 21 March, 2013**

**Auditor Equip:**

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# INDEX

## 1. PURPOSE OF THE REPORT

### 1.1. Relationship with MANGO

## 2. AUDIT PROCESS

### 2.1. Audit protocol

### 2.2. Measuring protocol

### 2.3. Audit and laboratory results

#### 2.3.1. Supporting documents

#### 2.3.2. Recommendations

#### 2.3.3. Facility sign-off

## 3. DECLARATION OF THIRD PARTY

### Annex 1:

**List of analytes (as per IPE Corporate Disclosure Data Form ENG FINAL Q1 0320)**

### Original Testing Report

## 1. PURPOSE OF THE REPORT

The purpose of this report is auditing, based on the Standard Oeko-tex® Standard 1000, by checking the use of chemicals products within the production process in the related factory and the release of any harmful chemicals after the wet processes performed.

### 1.1. Relationship with MANGO

KNITTING FACTORY



MANGO

Knitting Factory is one of the main suppliers of finished garments for MANGO. MANGO buys directly to the supplier the final product.

## 2. AUDIT PROCESS

### 2.1. Audit protocol

The system used in the quality control audit is based on the audit procedure of the Oeko-Tex® Standard 1000, specific certification for textile companies that want to differentiate their good environmental performance and was carried out by the independent third party auditor Aitex (see section 3) accompanied by Mango staff, including the following steps:

- ✓ **Opening meeting:** explaining reason of the audit, explanation of the program, steps for future follow-up, affirmation of the confidentiality.
- ✓ **Documentary review and questionnaire** to be completed by Aitex as per the comments from the responsible staff of the facility and the main responsible person in charge of chemicals/environment area of the company. The questionnaire helps to determine the kind of production process carried out in the company, environment impact points as well as other general information about consumptions, list of chemicals, external certifications (ISO 14001, Oeko-Tex® Standard 100), third party inspections reports, internal reports of waste water, etc.
- ✓ **Inspection to the facility:** The different areas of production of the company are freely and properly checked to ensure all discharge pathways. Points of greater risk environment impact are identified (chemical room, drainage discharges, pipes, etc). After identifying the points of discharge, the sample is taken *in situ* from all points

considering necessary (upstream and if possible, from any further treatment): one sample making up 2000 ml and not in alternative times. Pictures were taken for my records.

- ✓ **Closing meeting:** some remarks and comments after the visit are given and shared with the managing representatives of the company.

**Notes:** During the whole process, a Chinese interpreter joined us for the correct communication. Samples were properly sealed and identified and sent to the laboratory for the testing.

## 2.2. Measuring protocol

Knitting Factory manufactures knitted garments and also does the washing and drying process in the same facility. The main environmental concern in this textile industry is the amount of water discharged and the chemical load it carries.

To evaluate the environmental impact of waste water a representative sample of the pollutant concentration level was taken at the end of the wet production process which was assessed as the main discharge upstream of any treatment (ie before waste water treatment whether facility own treatment or collective/ publicly owned treatment).

<b>Knitting Factory</b>			
<b>Name of sample</b>	<b>Day</b> (Day/month/year) / <b>Time</b>	<b>Sampling point</b>	<b>Volum</b>
21032013AR3 BT BEFORE TREATMENT	21/03/2013 16:00	Discharge pipe coming out of the washing area and after all production process	2000 ml

The location of the facility where the sample 21032013AR3 was taken is as follows:

Zhang Mu Tou  
Dongguan, Guangdong  
China

<b>Knitting Factory</b>			
<b>Name of sample</b>	<b>Day</b> (Day/month/year)/ <b>Time</b>	<b>Sampling point</b>	<b>Volum</b>
21032013AR4 AT AFTER TREATMENT	21/03/2013 16:30	After treatment plant	2000 ml

The location of the facility where the samples 21032013AR4 was taken is as follows:

Zhang Mu Tou  
Dongguan, Guangdong  
China

The samples were always collected by the auditor during the on-site audit. As they were always taken at the same time, there are alternative results.

The management of sludge in this company is conducted through the Government. The Government is responsible for periodically remove sludge.

In the Protocol of Oeko-Tex® Standard 1000 audit is established that if the company is not responsible for the management of sludge, we don't consider necessary to take sample, because the impact produced cannot be quantified.

In line with the Detox ambition and prevention at source, we understand that the sampling should however be done before any treatment of the waste water to ensure that no substances are being used in the process. In this perspective the sampling of sludge is not relevant for detecting use.

### **2.3. Audit and laboratory results**

The laboratory performing the testing of samples is:

**Intertek Testing Services Ltd., Shanghai**  
[www.intertek.com](http://www.intertek.com)

For more than 100 years, Intertek has guided clients through the challenging certification process. Offering the broadest range of certification and accreditation marks accepted in markets around the world, Intertek can help clients to succeed in new and existing markets, meet evolving regulatory requirements and win new customers.

Intertek is a leading provider of independent analytical laboratory testing services, from advanced R&D research projects to routine quality tests. The analytical services laboratories are staffed by trained chemists, material scientists, technicians and laboratory management with years of industry knowledge and expertise.

### **Chemical Analysis - GLP Laboratories**

- Structure elucidation, chemical identification, reformulation, reverse engineering
- Determination of impurities and contaminants: By-product profiling and identification, identification of unknown compounds
- Preparation and qualification of reference material
- Analytics in regulated areas: REACH, GLP/GMP, CoAs for registration
- Molecular weight distribution, In-situ reaction monitoring, reaction kinetics, color and white metrics
- Special library services: MS, IR, Raman, NMR
- Open access and express services: NMR, LC-MS, FTIR, GC-MS
- Failure analysis: Foreign particles, deposits, blooming, discoloration

### **Microscopy and Surface Analysis**

- Surface sensitive analysis: Thin film analysis, depth profiling, penetration studies, cleanliness studies
- Surface properties: Topography, roughness, morphology, elasticity
- Particle properties: Size, shape, morphology
- Failure analysis: Elemental microanalysis, cross-section analysis
- Analytical imaging applications: EDX-mapping, STEM, SIMS-mapping, FTIR, Raman, polymorphism, uniformity, distribution, chemometry
- Open access and express services: SEM and AFM

### **Trace Analysis - GLP/GMP-Laboratories**

- Extractables and leachables studies for all types of pharmaceutical container closure systems and in-process materials
- Impurity profiling: APIs and finished drug systems, screenings and failure investigations
- Method development & validation (GMP): QC methods and process validation methods
- Reference material qualification
- Classical trace analysis: PCDD/Fs, PCBs, PAHs, N-Nitrosamines, fluoro-organics, aromatic amines organo tin compounds
- VOCs: Volatile organic compounds, residual solvents & odor problems
- OECD-methods (GLP): Water solubility, Kow- and Koc-value, hydrolysis studies, soil sorption, etc.
- Migration studies according to EU and/or FDA guidelines

### 2.3.1. Supporting documents

In the audit, the audit team verified Knitting Factory has the following certificates:

Document	Number	Comments
Quality Management System – ISO 9001:2008	Confidential	Expiry date: 24/10/2013
Environment licence	Yes	Expiry date: 27/06/2012 (in renewal)

In this facility, the places where there is a greater risk of environmental impact are:

- Chemicals warehouse, which is equipped for this purpose and in accordance with standards ISO quality and environment certified externally and inventory of MSDS with environment criteria.
- Hazardous waste, which is properly paved and stored under cover, with the appropriate retention basins and respecting the incompatibilities between chemicals.
- Wastewater discharge point: coming out after the washing area discharge. Later, the water is treated in an own treatment plant with biological pools and monthly control of the main parameters before final treatment in a government plant.

The substances intended for analysis is listed in Annex 1 (List of Analytes) according to the IPE disclosure data form (v 0320). The original test report is also provided in Annex 1.

The results obtained for sample 21032013AR3 is as follows:

Before treatment plant	Concentration of pollutant release (mg/L)	Total pollutant discharge estimation (kg/year)
<b>NPEO</b> <sub>(1+2)</sub>	0,426	2,658
<b>1,4-Dichlorobenzene</b>	0,010	0,062

The results obtained for sample 21032013AR4 is as follows:

After treatment plant	Concentration of pollutant release (mg/L)	Total pollutant discharge estimation (kg/year)
NPEO <sub>(1+2)</sub>	< 0.1	-
1,4-Dichlorobenzene	< 0.01	-

<b>Measurement method used for calculating total Pollutant Discharge:</b>	Self-monitored data
<b>Source of Pollutant concentration data:</b>	Self-monitored data

Total volume of discharged water during 2012: 6.240 m<sup>3</sup>/year.

The total pollutant discharge estimation has been calculated with the total waste water discharged during 2012 (one complete year) as per documentation collected during the audit.

It is worth to remind the variability in the process discharges along the year and that this sample was taken at an specific moment. For better interpretation of results, it would be advisable periodical follow-up into the sample flow.

## EVALUATION OF RESULTS

The most important APEO or alkylphenol ethoxylates for the textile industry are NPEO (nonylphenol ethoxylates) and OPEO (octylphenol ethoxylates) due to their detergent properties. About 90% of the produced APEO are in fact NPEO. The compounds are used in detergents, cleaning agents, or chemicals used for textile production. Therefore, the concentration detected in the sample 21032013AR3 could be due to his auxiliaries and chemical compounds used in the washing step.

Chlorinated benzenes and toluenes may be present in dyestuff preparations. Especially 1,4-dichlorobenzene, are used also as moth proof agents for proteinic fibres. Therefore it may happen that even not dyed materials from these fibres do contain chlorinated benzenes and toluenes. Also solvent enclosure throughout production (for example during manufacturing of polyester buttons) can cause high to very high contamination with chlorinated benzenes and toluenes. Therefore, the concentration detected in the sample 21032013AR3 could be due to solvent enclosure used in manufacturing.



It is important to take into account that the water after the treatment in an own treatment plant with biological pools does not contain any pollutant compound. So, the company has very good waste water treatment and reduced significantly of presence the compounds derived from chemicals used in the process.

## **ADDITIONAL COMMENTS**

The effects of generic form that can produce these substances on the environment are:

### **NPEO (nonylphenol ethoxylates): Environmental Effects**

These compounds will often end in the wastewater and consequently form a problem in the environment - e.g. in rivers, lakes, etc. and toxic effects have been observed in some species of fish and in other aquatic organisms. Nonylphenol ethoxylates (NPEO) concerns due to their poor biodegradability, their toxicity and their potential to act as endocrine disruptors. Nonylphenol ethoxylates are themselves believed to be endocrine disruptors and to cause feminization of male fish.

### **1,4-dichlorobenzene: Environmental Effects**

1,4-dichlorobenzens may cause long-term adverse effects in the aquatic environment. However, the testing result does not exceed the OMS Guidelines for Drinking-water Quality detection limit, which is 0.3 mg/L and we have to consider that the OMS Guidelines are the international reference point for standard setting and drinking-water safety.

By comparing the results obtained and the regulations in force in China according to standard GB3838-2002, they do not exceed in any parameter, so the results comply with the legal standard of the region.

AITEX, as the laboratory in charge of monitoring the control of harmful substances on all MANGO goods, can confirm that these substances that may appear during the production process and waste water, are tested on the final product before selling to avoid any danger to human health following the most restrictive standards of all countries where their products are marketed.

### **2.3.2. RECOMMENDATIONS**

It is recommended to search the origin of the pollutant compounds and replace them by others more correct environmentally and eco-friendly auxiliaries products to reduce compounds in the wastewater.

Moreover, we recommend this facility to introduce automatic doses system to try to optimize the chemicals consumption at washing.

### **2.3.3. FACILITY SIGN-OFF**

The responsibility for the discharges data included in this report has been fully recognised and agreed for disclosure by the CEO/ General Manager of the facility with the accompanying additional information (see scan of original declaration below):

## Corporate Disclosure Data Form

**Enterprise Name (Chinese) :**

**Enterprise Name (English) :**

**Facility Name / identity (if enterprise has several facilities):** South Grand Fashions Garment Ltd.

**Facility Address:** Dongguan, Guangdong, China

**Type of industrial activity (sector, subsector1):** Apparel (Sweater) in knitting, linking, washing, pressing and packing.

**Reporting Year:** 2013

**Trimester period data applies to<sup>2</sup>:** 1 Jan 2013- 31 Mar 2013

**Responsible person<sup>3</sup>**

**Name (please print):** Mr Lui See Long

**Title:** Production General Manager

**Phone number:**

**Date submitted:** 10 April 2013

**Signature:**

**Signature of CEO or General Manager:**



<sup>1</sup> Eg textile/apparel, dyeing

<sup>2</sup> Eg. 1 Jan 2013- 31 Mar 2013

<sup>3</sup> Eg the person responsible for environmental management

**Other Parameters, relevant pollutant discharge information and environment management status :**

*e.g. other pollutant concentration data (ETP outlet/discharges and sludge), leaks, accidents etc. that occurred that would explain discharge anomalies or extra auditing process information, progress information reports, actions taken to achieve results etc*

Question 1 ~ if you have ever changed chemical suppliers and the reason why

Answer: We didn't change the chemical supplier in past because the lab test result either garment test or chemical test by EU / US standard were quite good in overall.

Question 2 - if you are asking your chemical suppliers to give you better quality chemicals and environmental friendly

Answer: We always keep update on the requirement of international eco-friendly and request chemical supplier to provide the quality which can fulfill.

Question 3 - if you are asking/ have asked your chemical suppliers to give you more information on the ingredients in the chemical formulations , specifically on these chemicals and/or other possibly hazardous chemicals

Answer: Ingredients, instruction and any of specify will list out on the handbook along with each chemical product which will be provided each time.

Question 4 - if you have identified any dangerous chemical with fail results and you are taking steps to replace it

Answer: No fail result has been found in the past.

Question 5 - if you are now investigating about any chemical used

Answer: Factory keep investigating with governors periodically to ensure the good quality by sending chemical sample to lab test.

Question 6 - trainings done, etc

Answer -- Yes, all the relevant workers will finish internal training before starting their formal job and will keep training once have any updated info & requirement.

END

### 3. DECLARATION OF THIRD PARTY



Alcoy, March 2013

To whom it may concern,

Vicente Blanes Julià, as General Manager of the Institution AITEX (Textile Research Institute) declares that:

AITEX is a private non-profit association that encompasses textile and textile-related companies. Its ultimate aim is to make this sector more competitive. To achieve this, the Institute promotes modernisation and the introduction of new and emerging technologies by developing R&D projects and, in general, any initiatives that will contribute to the industrial progress of the sector.

It is registered with the Register of Innovation and Technology Centres, registration number 36, as well as the Research Results Transfer Office (OTRI), registration number 115. It is also a member of the Spanish Federation of Innovation and Technology Centres (FEDIT) and the Region of Valencia's Network of Technology Institutes (REDIT) as well as a number of other national and international organisations.

AITEX has accredited the following standards for their organisation:

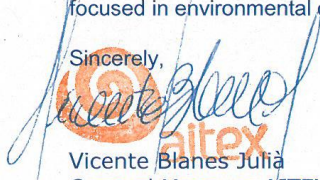
- It is a recognized testing laboratory that works according to a standardized and organized management system to ensure the uniformity of their work to their customers. AITEX laboratory services are accredited by ENAC according to the norm UNE - EN ISO IEC 17025:2005 ERRATUM:2006 "General requirements for the competence of laboratories testing and calibration" and document CGA - ENAC - LEC "general criteria for the accreditation of laboratories for testing and calibration according to standard UNE EN ISO IEC 17025".
- Also during 2012 the certification of the quality system of AITEX according to the reference standard UNE - EN - ISO 9001:2008 "quality management systems, requirements by AENOR has been remained.

In Spain, only AITEX is the institute authorized for auditing and certificate Oeko-Tex® Standard 100 (for product) and Oeko-Tex® Standard 1000 (for companies), under the supervision of the Secretariat, International Association for Research and Testing in the Field of Textile Ecology (OEKO-TEX®) in Zürich.

The auditors involved in the project MANGO - DETOX work with complete impartial criteria with audited companies.

The staffs involved have the appropriate training to be an evaluation body focused in environmental objectives.

Sincerely,



Vicente Blanes Julià  
General Manager AITEX

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Los ensayos acreditados por ENAC se encuentran disponibles en el departamento de calidad del Instituto  
Asociación de Investigación de la Industria Textil - C.I.F.: G03182870

## Annex 1

### List of analytes

SUBSTANCE GROUP/COMMON NAME	CAS number	COMMENTS
<b>Heavy Metals</b>		
Total Hexavalent chromium	NA	SEE LAB REPORT ATTACHED
Mercury and its Compounds or Total Mercury	NA	SEE LAB REPORT ATTACHED
Lead and its Compounds or Total Lead	NA	SEE LAB REPORT ATTACHED
Cadmium and its Compounds or Total Cadmium	NA	SEE LAB REPORT ATTACHED
Total Chromium	NA	SEE LAB REPORT ATTACHED
Total Zinc	NA	SEE LAB REPORT ATTACHED
Total Manganese	NA	*NOT TESTED* (Missing substance as it is not regulated in China for textile wastewater.)
Total Cyanide	NA	*NOT TESTED* (Missing substance as it is not regulated in China for textile wastewater.)
Nickel	NA	SEE LAB REPORT ATTACHED
Total Copper	NA	SEE LAB REPORT ATTACHED
Other heavy metals <sup>1</sup>	NA	TOTAL ARSENIC (SEE ORIGINAL LAB REPORT)
<b>Alkylphenols</b>		
NP / 4-NP (branched)	25154-52-3 <sup>2</sup> ALTERNATIVE 11066-49-3 <sup>3</sup> Or 90481-04-2 <sup>4</sup>	SEE LAB REPORT ATTACHED
NPE	commonly used CAS number is 9016-45-9 <sup>5</sup>	NPEO <sup>(1+2)</sup> , NPEO <sup>(3-18)</sup> (SEE ORIGINAL LAB REPORT)
4-t-OP	140-66-9	SEE LAB REPORT ATTACHED (4-t-OP = OP)
4-t-OPE	<b>26636-32-8</b>	*NOT TESTED*. MISSED

<sup>1</sup> to be filled in by facility for any other relevant heavy metals that are listed

<sup>2</sup> Commonly used, cite from OSPAR

<sup>3</sup> From Information from the Existing Substances Regulation: <http://echa.europa.eu/web/guest/information-on-chemicals/information-from-existing-substances-regulation>

<sup>4</sup> From EU risk assessment: <http://echa.europa.eu/web/guest/information-on-chemicals/information-from-existing-substances-regulation>

<sup>5</sup> From OSPAR

Other alkylphenols <sup>6</sup>	NA	OPEO <sub>(3-16)</sub> (SEE ORIGINAL LAB REPORT)
<b><u>Phthalates</u></b>		
DEHP,	117-81-7	SEE LAB REPORT ATTACHED
DBP,	84-74-2	SEE LAB REPORT ATTACHED
BBP	85-68-7	SEE LAB REPORT ATTACHED
DIBP,	84-69-5	SEE LAB REPORT ATTACHED
DNOP	117-84-0	SEE LAB REPORT ATTACHED
DIDP	26761-40-0 and 68515-49-1	SEE LAB REPORT ATTACHED
DINP	28553-12-0 and 68515-48-0	SEE LAB REPORT ATTACHED
Other phthalates <sup>7</sup>		DnHP (SEE LAB REPORT ATTACHED)
<b><u>Brominated and Chlorinated flame retardants</u></b>		
HBCDD ,	25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8)	SEE LAB REPORT ATTACHED
Tris (2,3-dibromopropyl) phosphate	126-72-7	*NOT TESTED*. MISSED
Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	*NOT TESTED*. MISSED
Tetra BDE	40088-47-9	SEE LAB REPORT ATTACHED
PentaBDE	32534-81-9	SEE LAB REPORT ATTACHED
HexaBDE,	36483-60-0	SEE LAB REPORT ATTACHED
HeptaBDE,	68928-80-3	*NOT TESTED*. MISSED
octaBDE,	32536-52-0	SEE LAB REPORT ATTACHED
NonaBDE	63936-56-1	*NOT TESTED*. MISSED
decaBDE,	1163-19-5	SEE LAB REPORT ATTACHED

<sup>6</sup> to be filled in by facility for any other relevant alkylphenols that are identified eg on Material safety data sheets

<sup>7</sup> to be filled in by facility for any other relevant phthalates that are identified eg on Material safety data sheets

Other brominated or chlorinated Flame retardants <sup>8</sup>	59536-65-1 / 79-94-7	PBBs and TBBPA (SEE LAB REPORT ATTACHED)
<b>Azodyes<sup>9</sup></b>		TESTED: 22 AMINES as per REACH Regulation.
		*NOT TESTED*: 2,4-Xylidine / 2,6-Xylidine. From now on, Chinese GB18041 standard will be follow to include all 24 amines.
<b>Organotin Compounds<sup>10</sup></b>		
Tributyltin compounds(TBT)	56573-85-4	SEE LAB REPORT ATTACHED
Dibutyl tin compounds(DBT)	1002-53-5	SEE LAB REPORT ATTACHED
Mono butyltin compounds	78763-54-9	MBT (SEE LAB REPORT ATTACHED)
Octyl tin compounds (DOT)	15231-44-4	SEE LAB REPORT ATTACHED
Phenyltin compounds	668-34-8	TPT (SEE LAB REPORT ATTACHED)
Other organo tins <sup>11</sup>		TPhT (Triphenyltin), MOT (Monooctyltin), TphT (Diphenyltin), TeBT (Tetrabutyltin), TcYT (Tricyclohexyltin), TeET (Tetraethyltin) (SEE ORIGINAL LAB REPORT)
<b>Perfluorinated Chemicals</b>		
PFOS	307-35-7; ALTERNATIVE 1763-23-1.	SEE LAB REPORT ATTACHED
PFOA	335-67-1	SEE LAB REPORT ATTACHED
Other C8 PFCs <sup>12</sup>	NA	NA
PFHXS	432-50-7	*NOT TESTED*
PFHXA	307-24-4	*NOT TESTED*
Other C6 PFCs <sup>13</sup>	NA	NA
PFBS	375-73-5	*NOT TESTED*. MISSED
PFBA	375-22-4	*NOT TESTED*. MISSED
Other C4 PFCs <sup>14</sup>	NA	NA

<sup>8</sup> to be filled in by facility for any other relevant brominated or chlorinated flame retardants in this group that are identified eg on Material safety data sheets

<sup>9</sup> Azodyes mentioned here refer to the 24 compounds banned by the National General Safety technical Code for textile products. (GB 18401-2010)

<sup>10</sup> Part of the CAS code of Organotin Compounds are quoted from American Apparel& Footware Association – Restriction Substance List (AAFA RSL, Oct, 2012).

<sup>11</sup> to be filled in by facility for any other relevant organotins in this group that are identified eg on Material safety data sheets

<sup>12</sup> to be filled in by facility for any other C8 PFCs in this group that are identified eg on Material safety data sheets

<sup>13</sup> to be filled in by facility for any other C6 PFCs in this group that are identified eg on Material safety data sheets

<sup>14</sup> to be filled in by facility for any other C4 PFCs in this group that are identified eg on Material safety data sheets



Other PFCs <sup>15</sup>		N-Methyl-Perfluorooctanesulfonamide(N-ME-FOSA), N-Ethyl-Perfluorooctanesulfonamide(N-Et-FOSA), N-Methyl-Perfluorooctanesulfonamidoethanol(N-Et-FOSE alcohol), N-Ethyl-Perfluorooctanesulfonamidoethanol(N-Me-FOSE alcohol), Perfluorooctane Sulfonamide(PFOSA) (SEE ORIGINAL LAB REPORT)
<b>Chlorinated Chemicals:</b>		
<b>Chlorobenzenes, chlorinated solvents, chlorophenols and Short chained chlorinated parafins</b>		
<b>Chlorobenzenes</b>		
monochlorobenzene	108-90-7	*NOT TESTED*. MISSED
dichlorobenzene	1,2-Dichlorobenzene 95-50-1 1,3-Dichlorobenzene 541-73-1 1,4-Dichlorobenzene 106-46-7	SEE LAB REPORT ATTACHED
trichlorobenzene	1,2,3-trichlorobenzene 87-61-6 1,2,4-trichlorobenzene 120-82-1 1,3,5-trichlorobenzene 108-70-3	SEE LAB REPORT ATTACHED
tetrachlorobenzene	1,2,3,4-Tetrachlorobenzene 634-66-2  1,2,3,5-Tetrachlorobenzene 634-90-2;  1,2,4,5-Tetrachlorobenzene : 95-94-3	*NOT TESTED*. MISSED
pentachlorobenzene	608-93-5	*NOT TESTED*. MISSED.
hexachlorobenzene	118-74-1	*NOT TESTED*. MISSED.
<b>Chlorinated solvents (chlorinated alkanes and alkenes)</b>		
Dichloromethane	75-09-2	*NOT TESTED*. MISSED
Trichloromethane (chloroform)	67-66-3	SEE LAB REPORT ATTACHED
Tetrachloromethane	56-23-5	*NOT TESTED*. MISSED
1,1,2-Trichloroethane	79-00-5	SEE LAB REPORT ATTACHED
1,1-dichloroethane	75-35-4	*NOT TESTED*. MISSED
1,2-dichloroethane (EDC)	107-06-2	*NOT TESTED*. MISSED
Trichloroethylene (TCE)	79-01-6.	SEE LAB REPORT ATTACHED
Perchloroethylene (PERC); also known as tetrachloroethylene	127-18-4	SEE LAB REPORT ATTACHED

<sup>15</sup> to be filled in by facility for any other PFCs in this group that are identified eg on Material safety data sheets

<b>Chlorophenols</b>		
Penta chlorophenols (PCP)	87-86-5	SEE LAB REPORT ATTACHED
Tetrachlorophenols (PCP)	25167-83-3	*NOT TESTED*. MISSED
Tri chlorophenols (PCP)	2,4,6-Trichlorophenol; 88-06-2	SEE LAB REPORT ATTACHED
	2,4,5-Trichlorophenol; 95-95-4	*NOT TESTED*. MISSED
	2,3,4-Trichlorophenol; 15950-66-0	*NOT TESTED*. MISSED
	2,3,5-Trichlorophenol; 933-78-8	*NOT TESTED*. MISSED
	3,4,5-Trichlorophenol; 609-19-8	*NOT TESTED*. MISSED
Di chlorophenol (PCP)	2,4- dichlorophenol 120-83-2	SEE LAB REPORT ATTACHED
	2,6-Dichlorophenol 87-65-0	*NOT TESTED*. MISSED
	3,5- dichlorophenol. 591-35-5	*NOT TESTED*. MISSED
	2,3-Dichlorophenol; 576-24-9	*NOT TESTED*. MISSED
	3,4-Dichlorophenol; 95-77-2	*NOT TESTED*. MISSED
	2,5-Dichlorophenol; 583-78-8	SEE LAB REPORT ATTACHED
Mono chlorophenol (PCP)	95-57-8 2-chlorophenol;	*NOT TESTED*. MISSED
	108-43-0 3-chlorophenol;	*NOT TESTED*. MISSED
	106-48-9 4-chlorophenol	*NOT TESTED*. MISSED
Other chlorobenzenes, Chlorinated solvents and chlorophenols <sup>16</sup>		1,1,1,2-Tetrachloroethane, 1,1,1-trichloroethane, Carbon Tetrachloride, Pentachloroethane, 1,1-Dichloroethylene (SEE ORIGINAL LAB REPORT)
<b>Short chained chlorinated parafins</b>		
SCCP chloro alkanes, C10-13	85535-84-8	SEE LAB REPORT ATTACHED
<b>Other hazardous chemicals</b> <sup>17</sup>		

(\* ) All the substances indicated as \*NOT TESTED/MISSED, Mango will progressively require testing in subsequent sampling.

**REMARK:** All detection limits of all analytes and in particular the APEOs, will be revised in line with best technically available detection levels.

## Original Testing Report(s) (PDF(s) attached)

<sup>16</sup> to be filled in by facility for any other relevant substances in this group that are identified eg on Material safety data sheets

<sup>17</sup> to be filled in by facility for any other relevant chemical groups that are identified eg on Material safety data sheets



Sample 21032013AR3



Test Report

Number: SZHH00771095

Applicant: MANGO PUNTO FA, S.L.  
C/ MERCADERS 9-11 P.I. RIERA DE CALDES  
PALAU-SOLITA I PLEGAMANS, 08184  
BARCELONA SPAIN.

Date: Mar 29, 2013

Attn: ALICE

Sample Description:

One (1) submitted sample said to be :

**Transparent water (21032013AR3 - BT Before Treatment).**

Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Asociación de Investigación de la Industria Textil – C.I.I.F.: G03182870

Authorized by:  
For Intertek Testing Services  
Shenzhen Ltd.

Ben N.L. Lin  
General Manager



**Intertek Testing Services Shenzhen Ltd.-TFH Division**  
7/F., Shekou Technology Main Building, Industrial 7th Road, Shekou, Shenzhen, China  
Tel: (86-755) 2602 0111 Fax: (86-755) 2683 7118/9 Postcode: 518067  
Attention is drawn to the terms and conditions printed overleaf.



**Test Report**

Number: SZHH00771095

Tests Conducted

1 Nonylphenol (NP), Octylphenol (OP), Nonylphenol Ethoxylates(NPEO) And Octylphenol Ethoxylates(OPEO)

Solvent extraction, Gas Chromatography Mass Spectrometric (GC/MS) and Liquid Chromatography – Mass Spectrometry (LC-MS) Analysis.

Compound	Result (µg/L)
OP	<100
NP	<100
NPEO (1+2)	426
NPEO (3-18)	<100
OPEO (1+2)	<100
OPEO (3-16)	<100

Remark: Detection Limit = 100µg/L

2 Chlorinated solvents

By Headspace Gas Chromatography Mass Spectrometric (HS - GC/MS) Analysis.

Compound	Result (mg/L)
Trichloroethylene	<5
Tetrachloroethylene	<5
1,1,1-trichloroethane	<5
Carbon Tetrachloride	<5
1,1,1,2-Tetrachloroethane	<5
1,1,2,2-Tetrachloroethane	<5
1,1,2-Trichloroethane	<5
Pentachloroethane	<5
Trichloromethane	<5
1,1-Dichloroethylene	<5

Remark: Detection Limit = 5mg/L

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Asociación de Investigación de la Industria Textil – C.I.F.: G03182870



**Test Report**

Number: SZHH00771095

**Tests Conducted**

**3 Detection Of Amines Derived From Azocolourants And Azodyes**

With reference to EN 14362-1:2012, By Gas Chromatographic - Mass Spectrometric (GC-MS) And High Performance Liquid Chromatographic (HPLC) Analysis.

	<u>Forbidden</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>
1.	4-Aminodiphenyl	92-67-1	<100
2.	Benzidine	92-87-5	<100
3.	4-Chloro-o-Toluidine	95-69-2	<100
4.	2-Naphthylamine	91-59-8	<100
5.	o-Aminoazotoluene	97-56-3	<100
6.	2-Amino-4-Nitrotoluene	99-55-8	<100
7.	p-Chloroaniline	106-47-8	<100
8.	2,4-Diaminoanisole	615-05-4	<100
9.	4,4'-Diaminodiphenylmethane	101-77-9	<100
10.	3,3'-Dichlorobenzidine	91-94-1	<100
11.	3,3'-Dimethoxybenzidine	119-90-4	<100
12.	3,3'-Dimethylbenzidine	119-93-7	<100
13.	3,3'-Dimethyl-4,4'diaminodiphenylmethane	838-88-0	<100
14.	p-Cresidine	120-71-8	<100
15.	4,4'-Methylene-Bis(2-Chloroaniline)	101-14-4	<100
16.	4,4'-Oxydianiline	101-80-4	<100
17.	4,4'-Thiodianiline	139-65-1	<100
18.	o-Toluidine	95-53-4	<100
19.	2,4-Toluylenediamine	95-80-7	<100
20.	2,4,5-Trimethylaniline	137-17-7	<100
21.	o-Anisidine	90-04-0	<100
22.	p-Aminoazobenzene	60-09-3	<100

Remark : Detection limit = 100 µg/L

**4 Heavy Metals**

Heavy Metal Contents were analysed By Inductively Coupled Argon Plasma Mass Spectrometry (ICP-MS).

<u>Tested Element(S)</u>	<u>Result (µg/L)</u>	<u>MDL (µg/L)</u>
Total Cadmium(Cd)	<5	5
Total Arsenic(As)	<25	25
Total Lead(Pb)	<25	25
Total Chromium(Cr)	<25	25
Total Mercury(Hg)	<0.2	0.2
Total Copper(Cu)	<25	25
Total Nickel(Ni)	<5	5
Total Zinc(Zn)	<50	50
Total Hexavalent Chromium(Cr-VI)	<5	5

\*\*\*\*\*





**Test Report**

Number: SZHH00771095

Tests Conducted

5 Phthalates

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
Di-Butyl Phthalate (DBP)	<50
Di(2-Ethyl Hexyl) Phthalate(DEHP)	<50
Benzyl Butyl Phthalate (BBP)	<50
Di-Iso-Nonyl Phthalate (DINP)	<50
Di-N-Octyl Phthalate (DNOP)	<50
Di-Iso-Decyl Phthalate (DIDP)	<50
Di-Iso-Butyl Phthalate (DIBP)	<50

Remark: Detection Limit = 50µg/L

6 Chlorophenols

With reference to ISO 17070: 2006, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
2,4- & 2,5-Dichlorophenol	<10
2,4,6-Trichlorophenol	<10
Pentachlorophenol	<10

Remark: Detection Limit = 10µg/L

7 Organotin Compounds

With reference to ISO 17353:2004, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
MBT(Monobutyltin)	<5
DBT(Dibutyltin)	<5
TBT(Tributyltin)	<5
TPhT(Triphenyltin)	<5
DOT(Dioctyltin)	<5
MOT(Monooctyltin)	<5
DPhT(Diphenyltin)	<5
TeBT(Tetrabutyltin)	<5
TCyT(TricyclohexylTin)	<5
TPT(Tripopyltin)	<5
TeET(Tetraethyltin)	<5

Remark: Detection Limit = 5µg/L

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Asociación de Investigación de la Industria Textil – C.I.F.: G03182870



**Test Report**

Number: SZHH00771095

Tests Conducted

8 Flame Retardants

Solvent extraction, Followed by Liquid Chromatography - Mass Spectrometry (LC-MS) And Gas Chromatography - Mass Spectrometry (GC-MS) Analysis.

Compound	Result (µg/L)
Polybromobiphenyls(PBBs)	<100
Tetrabromodiphenylether(Tetra BDE)	<100
Pentabromodiphenylether(Penta BDE)	<100
Hexabromodiphenylether(Hexa BDE)	<100
Octabromodiphenylether(OctaBDE)	<100
Decabromodiphenylether(DecaBDE)	<100
Hexabromocyclododecane(HBCDD)	<100
TBBPA: TETRABROMOBISPHENOLA(TBBPA)	<100

Remarks: Detection Limit = 100µg/L

9 Perfluorinated Chemicals Content

Solvent Extraction, Liquid Chromatography-Mass Spectrometry (LC-MS) Analysis.

Compound	Result (µg/L)
Perfluorooctane Sulfonates(PFOS)	<0.5
Perfluorooctanoic Acid(PFOA)	<0.5
N-Methyl-Perfluorooctanesulfonamide(N-ME-FOSA)	<0.5
N-Ethyl-Perfluorooctanesulfonamide(N-Et-FOSA)	<0.5
N-Methyl-Perfluorooctanesulfonamidoethanol(N-Et-FOSE alcohol)	<0.5
N-Ethyl-Perfluorooctanesulfonamidoethanol(N-Me-FOSE alcohol)	<0.5
Perfluorooctane Sulfonamide(PFOSA)	<0.5

Remark: Detection Limit = 0.5µg/L

10 Chlorinated Paraffin (C10 -C13)

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Result : <1000 µg/L

Remarks: Detection Limit = 1000 µg/L

\*\*\*\*\*

Asociación de Investigación de la Industria Textil – C.I.I.F. : G03182870



**Test Report**

Number: SZHH00771095

**Tests Conducted**

11 Chlorinated Benzenes

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Compound	Result(µg/L)
1,4-Dichlorobenzene	10
Other Dichlorobenzene	<10
Trichlorobenzene	<10

Remark: Detection Limit = 10 µg/L

Date Sample Received: Mar 25, 2013

Testing Period: Mar 25, 2013 to Mar 29, 2013

\*\*\*\*\*  
End of report

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Page 6 of 6

**Intertek Testing Services Shenzhen Ltd.-TFH Division**  
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Attention is drawn to the terms and conditions printed overleaf.



Sample 21032013AR4:

**Intertek**

Test Report

Number: SZHH00772338

Applicant: MANGO PUNTO FA, S.L.  
C/ MERCADERS 9-11 P.I. RIERA DE CALDES  
PALAU-SOLITA I PLEGAMANS, 08184  
BARCELONA SPAIN.

Date: Mar 29, 2013

Attn: ALICE

Sample Description:


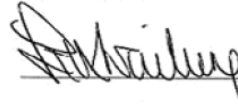
One (1) submitted sample said to be :  
**Transparent Water (21032013AR4 - AT After Treatment).**

Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Asociación de Investigación de la Industria Textil – C.I.I.F. : G03182870

Authorized by:  
For Intertek Testing Services  
Shenzhen Ltd.



Ben N.L. Lin  
General Manager



**Intertek Testing Services Shenzhen Ltd.-TFH Division**  
7/F., Shekou Technology Main Building, Industrial 7th Road, Shekou, Shenzhen, China  
Tel.: (86-755) 2602 0111 Fax: (86-755) 2683 7118/9 Postcode: 518067  
Attention is drawn to the terms and conditions printed overleaf.



**Test Report**

Number: SZHH00772338

Tests Conducted

1 Nonylphenol (NP), Octylphenol (OP), Nonylphenol Ethoxylates(NPEO) And Octylphenol Ethoxylates(OPEO)

Solvent extraction, Gas Chromatography Mass Spectrometric (GC/MS) and Liquid Chromatography – Mass Spectrometry (LC-MS) Analysis.

<u>Compound</u>	<u>Result (µg/L)</u>
OP	<100
NP	<100
NPEO (1+2)	<100
NPEO (3-18)	<100
OPEO (1+2)	<100
OPEO (3-16)	<100

Remark: Detection Limit = 100µg/L

2 Chlorinated solvents

By Headspace Gas Chromatography Mass Spectrometric (HS - GC/MS) Analysis.

<u>Compound</u>	<u>Result (mg/L)</u>
Trichloroethylene	<5
Tetrachloroethylene	<5
1,1,1-trichloroethane	<5
Carbon Tetrachloride	<5
1,1,1,2-Tetrachloroethane	<5
1,1,1,2-Tetrachloroethane	<5
1,1,2-Trichloroethane	<5
Pentachloroethane	<5
Trichloromethane	<5
1,1-Dichloroethylene	<5

Remark: Detection Limit = 5mg/L

\*\*\*\*\*

Asociación de Investigación de la Industria Textil – C.I.I.F.: G03182870





**Test Report**

Number: SZHH00772338

Tests Conducted

3 Detection Of Amines Derived From Azocolourants And Azodyes

With reference to EN 14362-1:2012, By Gas Chromatographic - Mass Spectrometric (GC-MS) And High Performance Liquid Chromatographic (HPLC) Analysis.

	<u>Forbidden</u>	<u>Cas No.</u>	<u>Result (µg/L)</u>
1.	4-Aminodiphenyl	92-67-1	<100
2.	Benzidine	92-87-5	<100
3.	4-Chloro-o-Toluidine	95-69-2	<100
4.	2-Naphthylamine	91-59-8	<100
5.	o-Aminoazotoluene	97-56-3	<100
6.	2-Amino-4-Nitrotoluene	99-55-8	<100
7.	p-Chloroaniline	106-47-8	<100
8.	2,4-Diaminoanisole	615-05-4	<100
9.	4,4'-Diaminodiphenylmethane	101-77-9	<100
10.	3,3'-Dichlorobenzidine	91-94-1	<100
11.	3,3'-Dimethoxybenzidine	119-90-4	<100
12.	3,3'-Dimethylbenzidine	119-93-7	<100
13.	3,3'-Dimethyl-4,4'diaminodiphenylmethane	838-88-0	<100
14.	p-Cresidine	120-71-8	<100
15.	4,4'-Methylene-Bis(2-Chloroaniline)	101-14-4	<100
16.	4,4'-Oxydianiline	101-80-4	<100
17.	4,4'-Thiodianiline	139-65-1	<100
18.	o-Toluidine	95-53-4	<100
19.	2,4-Toluylenediamine	95-80-7	<100
20.	2,4,5-Trimethylaniline	137-17-7	<100
21.	o-Anisidine	90-04-0	<100
22.	p-Aminoazobenzene	60-09-3	<100

Remark : Detection limit = 100 µg/L

4 Heavy Metals

Heavy Metal Contents were analysed By Inductively Coupled Argon Plasma Mass Spectrometry (ICP-MS).

<u>Tested Element(S)</u>	<u>Result (µg/L)</u>	<u>MDL (µg/L)</u>
Total Cadmium(Cd)	<5	5
Total Arsenic(As)	<25	25
Total Lead(Pb)	<25	25
Total Chromium(Cr)	<25	25
Total Mercury(Hg)	<0.2	0.2
Total Copper(Cu)	<25	25
Total Nickel(Ni)	<5	5
Total Zinc(Zn)	<50	50
Total Hexavalent Chromium(Cr-VI)	<5	5

\*\*\*\*\*





**Test Report**

Number: SZHH00772338

Tests Conducted

5 Phthalates

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
Di-Butyl Phthalate (DBP)	<50
Di(2-Ethyl Hexyl) Phthalate(DEHP)	<50
Benzyl Butyl Phthalate (BBP)	<50
Di-Iso-Nonyl Phthalate (DINP)	<50
Di-N-Octyl Phthalate (DNOP)	<50
Di-Iso-Decyl Phthalate (DIDP)	<50
Di-Iso-Butyl Phthalate (DIBP)	<50

Remark: Detection Limit = 50µg/L

6 Chlorophenols

With reference to ISO 17070: 2006, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
2,4- & 2,5-Dichlorophenol	<10
2,4,6-Trichlorophenol	<10
Pentachlorophenol	<10

Remark: Detection Limit = 10µg/L

7 Organotin Compounds

With reference to ISO 17353:2004, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Tested Compound	Result (µg/L)
MBT(Monobutyltin)	<5
DBT(Dibutyltin)	<5
TBT(Tributyltin)	<5
TPhT(Triphenyltin)	<5
DOT(Dioctyltin)	<5
MOT(Monooctyltin)	<5
DPhT(Diphenyltin)	<5
TeBT(Tetrabutyltin)	<5
TCyT(TricyclohexylTin)	<5
TPT(Tripropyltin)	<5
TeET(Tetraethyltin)	<5

Remark: Detection Limit = 5µg/L

\*\*\*\*\*

Asociación de Investigación de la Industria Textil – C.I.I.F.: G03182870



**Test Report**

Number: SZHH00772338

Tests Conducted

8 Flame Retardants

Solvent extraction, Followed by Liquid Chromatography - Mass Spectrometry (LC-MS) And Gas Chromatography - Mass Spectrometry (GC-MS) Analysis.

<u>Compound</u>	<u>Result (µg/L)</u>
Polybromobiphenyls(PBBs)	<100
Tetrabromodiphenylether(Tetra BDE)	<100
Pentabromodiphenylether(Penta BDE)	<100
Hexabromodiphenylether(Hexa BDE)	<100
Octabromodiphenylether(OctaBDE)	<100
Decabromodiphenylether(DecaBDE)	<100
Hexabromocyclododecane(HBCDD)	<100
TBBPA: TETRABROMOBISPHENOLA (TBBPA)	<100

Remarks: Detection Limit = 100µg/L

9 Perfluorinated Chemicals Content

Solvent Extraction, Liquid Chromatography-Mass Spectrometry (LC-MS) Analysis.

<u>Compound</u>	<u>Result (µg/L)</u>
Perfluorooctane Sulfonates(PFOS)	<0.5
Perfluorooctanoic Acid(PFOA)	<0.5
N-Methyl-Perfluorooctanesulfonamide(N-ME-FOSA)	<0.5
N-Ethyl-Perfluorooctanesulfonamide(N-Et-FOSA)	<0.5
N-Methyl-Perfluorooctanesulfonamidoethanol(N-Et-FOSE alcohol)	<0.5
N-Ethyl-Perfluorooctanesulfonamidoethanol(N-Me-FOSE alcohol)	<0.5
Perfluorooctane Sulfonamide(PFOA)	<0.5

Remark: Detection Limit = 0.5µg/L

10 Chlorinated Paraffin (C10 -C13)

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

Result : <1000 µg/L

Remarks: Detection Limit = 1000 µg/L

\*\*\*\*\*

Asociación de Investigación de la Industria Textil – C.I.I.F. : G03182870





**Test Report**

Number: SZHH00772338

Tests Conducted

11 Chlorinated Benzenes

Solvent Extraction, Gas Chromatography-Mass Spectrometry (GC-MS) Analysis.

<u>Compound</u>	<u>Result(µg/L)</u>
1,4-Dichlorobenzene	<10
Other Dichlorobenzene	<10
Trichlorobenzene	<10

Remark: Detection Limit = 10 µg/L

Date Sample Received: Mar 25, 2013  
Testing Period: Mar 25, 2013 to Mar 29, 2013

\*\*\*\*\*  
End of report

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Page 6 of 6

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