Berbrand srl

APEO Investigation Report

September 2015

Berbrand S.r.l.

Email: info@berbrand.com

Web : http://www.berbrand.com/

Table of Contents

APEOs in textile processes

Alkylphenol ethoxylates (APEO) are a group of nonionic surfactants, the most commonly used being nonylphenol ethoxylates (NPEO) and octylphenol ethoxylates (OPEO).

The chemical structure of these molecules makes them particularly useful in the textile industry wet processes (owing to their dispersant, detergent and emulsifying action), but particularly hazardous for the environment and for aquatic organisms.

Recent research confirms that APEO are potential endocrine disruptors, as well as being highly bio-accumulative and persistent. APEO contamination has been detected in riverbeds, water tables and even in the human food chain.

The APEOs are already subject to stringent restrictions in Europe where since January 2005, the EU 2003/53/EG directive has prohibited the use of the main group of APEO, the NPEOs, in concentrations greater than 0.1% in chemical intermediates. The presence of this group of substances in the processes of European companies and the final products can however be induced by the use of semi-finished produced in countries where the use of APEO is allowed.

To safeguard the health and safety of consumers, producers and local communities, Berbrand srl starting from July 2014 has introduced the ban on APEO the Manufacture Restricted Substances List (M-RSL) that suppliers are required to comply with.

In line with its Greenpeace Detox Commitment, BerBrand srl conducted an investigation into APEO usage in its products and in the supply chain to map the current situation.

Overview of Berbrand srl processes

Berbrand srl is a manufacturer of buttons, the main materials used are genuine Mother of Pearl and genuine Buffalo Horn.

The company does not directly carry out wet processes in the company's factory and direct consumption of chemicals virtually null.

Wet processes such as raw material washing, or bleaching, are carried out upstream by selected and established mills, in Australia, Vietnam and India; buttons dyeing and coating are mostly carried out by subcontractors in Italy.

APEOs can potentially find their way into Berbrand srl products through:

- Use in the very first treatments (elimination of organics traces) of raw materials;
- Finishing, Dyeing and coating treatments of buttons.

APEOs use in the company and by suppliers

In keeping with with the Detox commitment signed in 2014, Berbrand srl carried out a fact-finding investigation to check if any APEO enters, intentionally or unintentionally, in the supply chain.

No APEOS were found in the general tests Berbrand srl published on Aug 19 2014.

Finishing, dyeing and coating treatments of buttons are carried out by subcontracted based in Italy. A questionnaire based investigation on Italian suppliers found all of them declared not to make use of APEOS

The current investigation has thus been focused on the two main raw material family currently used by Berbrand srl: Mother of Pearl and genuine Buffalo Horn where APEOS can be used to eliminate organic traces.

1.2 methodology

Sampling

The investigation has been carried out on Mother of Pearl and genuine Buffalo Horn, the two main materials used by Berbrand, sampled from Berbrand's main suppliers.

The test report have been carried out by Certest laboratory in June-July 2015

The articles tested account for around 92% of Berbrand yearly sales.

Testing
The chemical tests on fabrics were conducted according to the best testing methods available at the laboratories that were compliant with the Berbrand DETOX Commitment and M-RSL.

A “Pass” result means APEOs are not detected on the sample according to detection limits.

1.3 results

Mother-of-pearl (Report no. 1512886 of 09/07/2015 and 1512764 of 16/07/2015).

This group of products represents the main share of BerBrand’s turnover. The test results show a PASS result for APEOS - as well as for all the other chemicals listed in our M-RSL.

All of Berbrands’ Mother-of-pearl production can thus be defined APEO Free. Selling APEO-free products means for Berbrand srl only a first (important) step towards success. It is in fact the company’s aim to keep investigating the supply chain in order to have the definitive elimination of all hazardous chemicals also from tier-1 and tier-2 suppliers.

Real Buffalo Horn (Report no. 1512887 of 10/07/2015).

The second family of raw materials investigated is genuine buffalo horn. The test found A*lkylphenoles* E*thoxylated,* (*Nonylphenol monoethoxylates)*, on one of the specimens tested that was originated in India, at a level well above detection limits.

Brebrand srl went deeper in the investigation to find the origin of the *Nonylphenol monoethoxylates* detected in the specimen.

According to the investigation the likely origin of the detection of *Nonylphenol monoethoxylates* is a surfactant, a "soap", commonly used for the removal of organic trace in the very first treatment of the buffalo horns, before the cut and the reduction in blanks.

BerBrand’s control and quality check in the supply chain of such material currently starts at the finished blank, being the earlier stage of this chain controlled locally by a large number of micro units, usually individuals or family businesses.

Following this result Berbrand srl defined the following action steps in order to boost the elimination of this substance from our supply chain:

1. Selecting Buffalo horn blanks from other suppliers in India and repeat the test on *alkylphenoles ethoxylated* so as to evaluate if

other supplier of genuine horn on the market have succeded in the elimination of *alkylphenoles ethoxylated*, from the early step and treatments and trying transmitting this knowledge to other Berbrand tier-1 suppliers and, through these, to tier-2 and so on. The Company is currently experiencing difficulties however in the investigation-knowledge transfer process, due to the tight closure of Indian caste society.

2. Searching for substitutes to *Nonylphenol monoethoxylates* and trying to promote such products, in view to help educating to a virtuous use of substitutes. An interesting substitute research direction is to draw from the experience in the elimination of organic traces in shells. For some kind of shells, natural bacteria are indeed used to remove all organic traces in the shell, exploiting the natural decomposition process.

Summary of investigation results, conclusions & next steps

A number of initiatives are already in progress or are being implemented to ensure no APEOs can enter Berbrand srl products at different stages in the supply chain:

- According to the public Berbrand srl M-RSL, which sets detection limits in line with the best available technology, APEOs are banned since July 2014;
- Supply contracts are being reformulated to ensure the full supply chain compliance with Berbrand srl APEO elimination commitment;
- A questionnaire survey and individual meetings program has been set up with Italian suppliers of finishing and other wet processes, to investigate the use of APEOs in the supply chain

Further to the above mentioned initiatives and to the lab tests carried out in 2014, a new set of tests focusing on the two main raw materials used by Berbrand, Mother of Pearl and genuine Buffalo Horn were performed in June-July 2015.

No traces of APEOs were found on the Mother of Pearls samples.
Traces of *Nonylphenol monoethoxylates* were found on one genuine Buffalo Horn Sample. An in depth investigation has been started to find the origin of the Nonylphenol that is originated in the very aarly stage of the horn processing in India.

In the next future Brebrand srl is taking action to:

- Exploring if other suppliers of genuine Buffalo horn blanks have already succeded in the elimination of *Alkylphenoles Ethoxylated*, from the early

step and treatments and trying transmitting this knowledge to our tier-1 suppliers;
- Actively searching for substitutes to *Nonylphenol monoethoxylates* especially testing if the elimination of organic traces methods through the use of natural bacteria used in some shells can be applied to genuine Buffalo Horns.

Berbrand srl is working to achieve active involvement across the supply chain in order to:
- disseminate information about APEOs substitutes;
- identify chemical formulations containing APEO still in use;
- identify alternative formulations or substances that guarantee equivalent results in industrial processing;
- undertake systematic substitution to achieve total elimination across the supply chain.

Berbrand srl, as part of the Italian DETOXLeader Group together with Canepa Spa, Italdenim Spa, Miroglio Spa, Tessitura Attilio Imperiali Spa, Zip Gfd Spa, Lanfranchi spa is fully aware that only with the active participation of the entire fashion industry it is possible to deliver the desired outcomes on a global scale.

Grumello del Monte, September 2015

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 09/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512886 of 09/07/2015

DENOMINATION
Analyses purchased by: Thomas BROYD
Purchase Order: \
Article: BUTTON B
Colour: RED

Type of Material: Button
Requirements: BERBRAND_PACCHETTO
DETOX_OFFERTA N. 15-217/0 DEL 26/06/2015
Sampling: done by the client

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Sample 1512886.01						
Determination of ethoxylated alkylphenols. Part 1: direct method - Test Method: ISO/DIS 18218-1: 2013 Operating Conditions - Determination by GC-MS + LC-MSMS analysis							
	NP	< L.O.Q.	<1	mg/kg	1		Pass
	OP (CAS 140-66-9)	< L.O.Q.	<1	mg/kg	1		Pass
Determination of ethoxylated alkylphenols. Part 2: indirect method - Test Method: ISO/DIS 18218-2: 2013 Par. 6.3 Determination of OP and NP Operating Conditions - Solvent extraction - Determination by GC-MS analysis							
	Sum of NP, OP	< L.O.Q.		mg/kg			
Determination of ethoxylated alkylphenols. Part 1: direct method - Test Method: ISO/DIS 18218-1: 2013 Operating Conditions - Determination by GC-MS + LC-MSMS analysis							
	Nonylphenol monoethoxylates, NP1EO	< L.O.Q.		mg/kg	1		
	Nonylphenol diethoxylates, NP2EO	< L.O.Q.		mg/kg	1		
	Nonylphenolethoxylates, n=4 to n=15	< L.O.Q.		mg/kg	1		
	Sum of NPEO	< L.O.Q.	<1	mg/kg			Pass
	Octylphenol monoethoxylates, OP1EO	< L.O.Q.		mg/kg	1		
	Octylphenol diethoxylates, OP2EO	< L.O.Q.		mg/kg	1		
	Octylphenolethoxylates, n=4 to n=15	< L.O.Q.		mg/kg	1		
	Sum of OPEO	< L.O.Q.	<1	mg/kg			Pass
Determination of Phthalates in footwear materials - Test Method: UNI CEN ISO TS 16181: 2011 Operating Conditions - Extraction in ultrasonic bath - Detection by GC-MS analysis							
	Bis-2-Etylhexyl Phthalate (DEHP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-n-octyll Phthalate (DnOP)	< L.O.Q.	<0,001	%	0,001		Pass
	Butyl Benzil Phthalate (BBP)	< L.O.Q.	<0,001	%	0,001		Pass
	Dibutyl Phthalate (DBP)	< L.O.Q.	<0,001	%	0,001		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI · DR. VERENA BARTALINI · 1866 · CHIMICO · TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 09/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512886 of 09/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Di-iso-nonyl Phthalate (DINP)	< L.O.Q.	<0,005	%	0,01		Pass
	Di-iso-decil Phthalate (DIDP)	< L.O.Q.	<0,005	%	0,01		Pass
	Dimethyl Phthalate (DMP)	< L.O.Q.	<0,001	%	0,001		Pass
	Diethyl Phthalate (DEP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-isobutyl Phthalate (DIBP)	< L.O.Q.	<0,001	%	0,001		Pass
	Diundecil Phthalate (DHNUP)	< L.O.Q.	<0,001	%	0,01		Pass
	Di-isoheptyl Phthalate (DIHP)	< L.O.Q.	<0,001	%	0,001		Pass
	Bis (2-Methoxyethyl) Phthalate (DMEP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-isopentyl Phthalate (DIPP)	< L.O.Q.	<0,001	%	0,001		Pass
	N-pentyl-isopentyl phthalate (NPIPP)	< L.O.Q.	<0,001	%	0,001		Pass
	1,2-BenzeneDiCarboxilic Acid DiPentyl Ester, Branched and Linear	< L.O.Q.	<0,001	%	0,01		Pass
	Dipentyl Phthalate (DPP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-n-esil Ftalato (DnHP)	< L.O.Q.	<0,001	%	0,001		Pass
Determination of certain AZO colorants in dyed leathers. Part 1: Determination of certain aromatic amines derived from azo colorants - Test Method: UNI EN ISO 17234-1: 2010 + EC1: 2011 Operating Conditions - Quantitative Detection: GC-MS - Confirmation by HPLC-DAD	**Aromatic amines derived from azodyes on leather**						
	5-nitro-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	o-Aminoazotoluene	< L.O.Q.	<5	mg/kg	5		Pass
	4-Aminobiphenil	< L.O.Q.	<5	mg/kg	5	(1)	Pass
	2,4,5-Trimethylaniline	< L.O.Q.	<5	mg/kg	5		Pass
	4-methoxy-m-phenylenediamine	< L.O.Q.	<5	mg/kg	5		Pass
	4-methyl-m-phenylenediamine	< L.O.Q.	<5	mg/kg	5		Pass
	o-anisidine	< L.O.Q.	<5	mg/kg	5		Pass
	2-Naphthylamine	< L.O.Q.	<5	mg/kg	5	(1)	Pass
	3,3'-Dichlorobenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	3,3'-Dimethoxybenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	4,4'-methylenedi-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	3,3'-Dimethylbenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	4,4'-methylenedianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Methylene-bis-(2-chloroaniline)	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Oxydianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Thiodianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-Chloro-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	Benzidine	< L.O.Q.	<5	mg/kg	5		Pass
	o-Toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	4-Chloroaniline	< L.O.Q.	<5	mg/kg	5		Pass
	p-cresidine	< L.O.Q.	<5	mg/kg	5		Pass
	2,4- Xylidine (CAS 95-68-1)	< L.O.Q.	<5	mg/kg	5		Pass
	2,6-Xylidine	< L.O.Q.	<5	mg/kg	5		Pass
	4-Aminoazobenzene	< L.O.Q.	<5	mg/kg	5		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI DR. VERENA BARTALINI 1866 CHIMICO TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 09/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512886 of 09/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
Determination of Chlorophenols content - Test Method: UNI EN ISO 17070: 2007 Operating Conditions - Detection by GC-MS analysis							
	Pentachlorophenol (PCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass
	Tetrachlorophenol (TeCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass
	Trichlorophenol (TCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass
Determination of chlorinated hydrocarbons in leather. Chromatographic method for short-chain chlorinated paraffins (SCCP). - Test Method: ISO/FDIS 18219: 2015 Operating Conditions - Ultrasonic extraction procedure: 60°C for 1h. - Determination by GC-ECNI-MS analysis.							
	Amount of extracted SCCP (C10-C13)	< L.O.Q.	<10	mg/kg	10		Pass
Determination of of Chromium (VI) content - Test Method: UNI EN ISO 17075: 2008 Operating Conditions - Determination by UV-VIS spectrophotometer - Result reported on the basis of Dry Matter							
	Chromium [Cr VI]	< L.O.Q.	<3,0	mg/kg	3,0		Pass
Chemical determination of metal content Part 2: Total metal content - Test Method: UNI EN ISO 17072-2: 2011 Operating Conditions - Microwave digestion - Determination by ICP-MS analysis - Result reported on the basis of Dry Matter							
	Metals						
	Total Cadmium [Cd] Content	< L.O.Q.	<0,5	mg/kg	0,02		Pass
	Total Lead [Pb] Content	< L.O.Q.	<0,5	mg/kg	0,5		Pass
	Total Mercury [Hg] Content	< L.O.Q.	<0,5	mg/kg	0,001		Pass
	Total Arsenic [As] Content	< L.O.Q.	<0,5	mg/kg	0,005		Pass
Solvent extraction and GC-MS analisys							
	Chlorinated solvents						
	Chloroform	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Pentachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Carbon tetrachloride	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,1-Trichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,2-Trichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,1,2-Tetrachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,2,2-Tetrachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – Dr. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 09/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512886 of 09/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	1,1-Dichloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Trichloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Tetrachloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1-Dichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,2-Dichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Dichloromethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Tetrachloromethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass

Notes
< L.O.Q.: Not detectable analytically
(1) = If the use of this analytical method has detected 4-aminodiphenyl and/or 2-naphtylamine, according to the current state of knowledge it cannot be unequivocally confirmed without additional information that azo colorants which release amines were used.
'' The assessment is obtained by the comparison between the Result of the analysis ("Result" column) and the required Limit ("Limit" column).
DNV and ICEC certifications are applied to following processes: "Provision of laboratory tests and related technical and regulatory assistance for leather, textiles, accessories, leather goods articles, footwear, Apparel and related components / raw materials."

Limits: Values indicated in the Limits column refer to the requirements stated in the document named in the "Requirements" field of the "Denomination" section
U.M.: Units of Measurement
L.O.Q.: Limit of Quantification
Assess.: Assessment
Pass: the test result is conform to the standard required
Fail: the test result is not conform to the standard required
N/A: it is not possible to carry out the test, or the test result can not be defined as "Pass" or "Fail"
The evaluations of change in color are carried out in accordance with ISO 105-A02, the evaluations of color staining are carried out in accordance with ISO 105-A03
BWS: Blue Wool Scale
GSR: Grey Scale Rating

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – Dr. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

PAGE 1 of 4

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512764 of 16/07/2015

DENOMINATION
Analyses purchased by: Thomas BROYD
Purchase Order: price included in report 1512886
Article: BUTTON B
Colour: RED

Type of Material: Button
Requirements: BERBRAND_PACCHETTO
DETOX_OFFERTA N. 15-217/0 DEL 26/06/2015
Sampling: done by the client

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Sample 1512764.01						
Solvent extraction and GC-MS analisys							
	Flame retardants						
	Penta-bromodiphenyl ether (PentaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Octa-bromodiphenyl ether (OctaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Decabromodiphenyl ether (DecaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris (1-aziridinyl)-phosphine oxide (TEPA)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris (2.3-dibromoproyl)-phosphate (TRIS)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Polybromominatedbiphenyls (PBB)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris(2-chloroethyl)phosphate (TCEP)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Exabromocyclodecane (HBCDD)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Brominated and Clorinated flame retardants						
	Decabromo biphenyl (DecaBB)	< L.O.Q.		mg/kg	50	BVG	
	Dibromo biphenyls (DiBB)	< L.O.Q.		mg/kg	50	BVG	
	Dibromo diphenyl ethers (DiBDE)	< L.O.Q.		mg/kg	50	BVG	
	Heptabromo biphenyls (HeptaBB)	< L.O.Q.		mg/kg	50	BVG	
	Heptabromo diphenyl ethers (HeptaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Hexabromo biphenyls (HexaBB)	< L.O.Q.		mg/kg	50	BVG	
	Hexabromo diphenyl ethers (HexaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Monobromo biphenyls (MonoBB)	< L.O.Q.		mg/kg	50	BVG	
	Monobromo diphenyl ethers (MonoBDE)	< L.O.Q.		mg/kg	50	BVG	
	Nonabromo biphenyls (NonaBB)	< L.O.Q.		mg/kg	50	BVG	
	Nonabromo diphenyl ethers (NonaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Octabromo biphenyls (OctaBB)	< L.O.Q.		mg/kg	50	BVG	
	Pentabromo biphenyls (PentaBB)	< L.O.Q.		mg/kg	50	BVG	
	Polybrominated diphenyl ethers (PBDEs)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo biphenyls (TetraBB)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo diphenyl ethers (TetraBDE)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo-bisphenol A (TBBPA)	< L.O.Q.		mg/kg	50	BVG	
	Tribromo biphenyls (TriBB)	< L.O.Q.		mg/kg	50	BVG	
	Tribromo diphenyl ethers (TriBDE)	< L.O.Q.		mg/kg	50	BVG	
	Tris(2,3-Dibromopropyl)-Phosphate (TRIS)	< L.O.Q.		mg/kg	50	BVG	
	Antimony trioxide	< L.O.Q.		mg/kg	50	BVG	
	Boric acid	< L.O.Q.		mg/kg	50	BVG	
	Boron trioxide	< L.O.Q.		mg/kg	50	BVG	
	Sodium tetraborate	< L.O.Q.		mg/kg	50	BVG	
	Tri-o-cresyl phosphate	< L.O.Q.		mg/kg	50	BVG	

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI · DR. VERENA BARTALINI · 1866 · CHIMICO · TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV
=ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC
=According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512764 of 16/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Tris(1,3-dichloro-2-propyl)phosphate (TDCPP)	< L.O.Q.		mg/kg	50	BVG	
Determination of selected Organotic Compounds - Gas chromatographic method - Test method: UNI EN ISO 17353: 2006							
	Organotin compounds						
	DBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	TBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	TPhT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	DOT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	MBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	DPhT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	MOT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TCyT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TeET	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TeBT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TPT	< L.O.Q.	<0,2	mg/kg	0,05	BVG	Pass
Perfluorinated surfactants - Test Method: UNI CEN TS 15968: 2010 Operating Conditions - Methanol ultrasonic extraction, 2h at 60°C - Determination by LC-MS MS							
	PFCs ionic						
	2H,2H,3H,3H-perfluoroundecanoate (H4PFUnA)	< L.O.Q.		µg/m2	1	BVG	
	2H,2H-perfluorodecanoate (H2PFDA)	< L.O.Q.		µg/m2	1	BVG	
	7H-dodecafluoroheptanoate (HPFHpA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoro-3,7-dimethyloctanoate (PF-3,7-DMOA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorobutane sulfonate (PFBS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorobutanoate (PFBA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorodecane sulfonate (PFDS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorodecanoate (PFDA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorododecanoate (PFDoA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroheptane sulfonate (PFHpS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroheptanoate (PFHpA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorohexane sulfonate (PFHxS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorohexanoate (PFHxA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorononanoate (PFNA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctane sulfonamide (PFOSA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctane sulfonate (PFOS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctanoate (PFOA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoropentanoate (PFPA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorotetradecanoate (PFTeA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorotridecanoate (PFTrA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroundecanoate (PFUnA)	< L.O.Q.		µg/m2	1	BVG	
	PFCs volatile						
	1H,1H,2H,2H-perfluoro-1-decanol (8:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI · DR. VERENA BARTALINI · 1866 · CHIMICO · TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512764 of 16/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	1H,1H,2H,2H-perfluoro-1-dodecanol (10:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoro-1-hexanol (4:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoro-1-oktanol (6:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoroctylacrylate (6:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluorodecylacrylate (8:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluorododecylacrylate (10:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	< L.O.Q.		µg/m2	1	BVG	
	2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	< L.O.Q.		µg/m2	1	BVG	
	N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	< L.O.Q.		µg/m2	1	BVG	
	N-methylperfluoro-1-octansulfonamide (MeFOSA)	< L.O.Q.		µg/m2	1	BVG	
Solvent extraction and GC-MS analisys							
	Chlorobenzenes						
	Chlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,3-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,4-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,4-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,3,5-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3,4-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3,5-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,4,5-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Pentachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Hexachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	3-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	4-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,3-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,4-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,5-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,6-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	3,4-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,3,6-Trichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,4,5-Trichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Tetrachlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Pentachlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT	02/07/2015
TESTING DATES FROM	02/07/2015 TO 16/07/2015
PAGE	4 of 4

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512764 of 16/07/2015

Notes
< L.O.Q.: Not detectable analytically
BVG = Test executed at Bureau Veritas Germany - Wilhelm-Hennemann-Str. 8, 19061 Schwerin, Germany
'' The assessment is obtained by the comparison between the Result of the analysis ("Result" column) and the required Limit ("Limit" column).
DNV and ICEC certifications are applied to following processes: "Provision of laboratory tests and related technical and regulatory assistance for leather, textiles, accessories, leather goods articles, footwear, Apparel and related components / raw materials."

Limits: Values indicated in the Limits column refer to the requirements stated in the document named in the ''Requirements'' field of the "Denomination" section
U.M.: Units of Measurement
L.O.Q.: Limit of Quantification
Assess.: Assessment
Pass: the test result is conform to the standard required
Fail: the test result is not conform to the standard required
N/A: it is not possible to carry out the test, or the test result can not be defined as "Pass" or "Fail"
The evaluations of change in color are carried out in accordance with ISO 105-A02, the evaluations of color staining are carried out in accordance with ISO 105-A03
BWS: Blue Wool Scale
GSR: Grey Scale Rating

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI - TOSCANA - DR. VERENA BARTALINI 1866 CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT	02/07/2015
TESTING DATES FROM	02/07/2015 TO 10/07/2015
PAGE	1 of 5

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512887 of 10/07/2015

DENOMINATION
Analyses purchased by: Thomas BROYD
Purchase Order: \
Article: BUTTON D
Colour: ANIMALIER

Type of Material: Button
Requirements: BERBRAND_PACCHETTO
DETOX_OFFERTA N. 15-217/0 DEL 26/06/2015
Sampling: done by the client

Sample 01

Test	Rating	Failure result
Determination of ethoxylated alkylphenols. Part 1: direct method - Test Method: ISO/DIS 18218-1: 2013	F	Sum of NPEO: 644,5 Result confirmed by a repetition of the trial mg/kg (<1)

F = DOES NOT MEET BUYER'S REQUIREMENT
The values in brackets represent requirements stated in the document named in the "Requirements" field of the "Denomination" section

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI - TOSCANA - DR. VERENA BARTALINI 1866 CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT	02/07/2015
TESTING DATES FROM	02/07/2015 TO 10/07/2015
PAGE	2 of 5

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512887 of 10/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Sample 1512887.01						
Determination of ethoxylated alkylphenols. Part 1: direct method - Test Method: ISO/DIS 18218-1: 2013 Operating Conditions - Determination by GC-MS + LC-MSMS analysis	**NP**	< L.O.Q.	<1	mg/kg	1		Pass
	OP (CAS 140-66-9)	< L.O.Q.	<1	mg/kg	1		Pass
Determination of ethoxylated alkylphenols. Part 2: indirect method - Test Method: ISO/DIS 18218-2: 2013 Par. 6.3 Determination of OP and NP Operating Conditions - Solvent extraction - Determination by GC-MS analysis	**Sum of NP, OP**	< L.O.Q.		mg/kg			
Determination of ethoxylated alkylphenols. Part 1: direct method - Test Method: ISO/DIS 18218-1: 2013 Operating Conditions - Determination by GC-MS + LC-MSMS analysis	**Nonylphenol monoethoxylates, NP1EO**	< L.O.Q.		mg/kg	1		
	Nonylphenol diethoxylates, NP2EO	< L.O.Q.		mg/kg	1		
	Nonylphenolethoxylates, n=4 to n=15	644,5		mg/kg	1		
	Sum of NPEO	644,5 Result confirmed by a repetition of the trial	<1	mg/kg			Fail
	Octylphenol monoethoxylates, OP1EO	< L.O.Q.		mg/kg	1		
	Octylphenol diethoxylates, OP2EO	< L.O.Q.		mg/kg	1		
	Octylphenolethoxylates, n=4 to n=15	< L.O.Q.		mg/kg	1		
	Sum of OPEO	< L.O.Q.	<1	mg/kg			Pass
Determination of Phthalates in footwear materials - Test Method: UNI CEN ISO TS 16181: 2011 Operating Conditions - Extraction in ultrasonic bath - Detection by GC-MS analysis	Bis-2-Etylhexyl Phthalate (DEHP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-n-octyll Phthalate (DnOP)	< L.O.Q.	<0,001	%	0,001		Pass
	Butyl Benzil Phthalate (BBP)	< L.O.Q.	<0,001	%	0,001		Pass
	Dibutyl Phthalate (DBP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-iso-nonyl Phthalate (DINP)	< L.O.Q.	<0,005	%	0,01		Pass
	Di-iso-decil Phthalate (DIDP)	< L.O.Q.	<0,005	%	0,01		Pass
	Dimethyl Phthalate (DMP)	< L.O.Q.	<0,001	%	0,001		Pass
	Diethyl Phthalate (DEP)	< L.O.Q.	<0,001	%	0,001		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI DR. VERENA BARTALINI 1866 CHIMICO TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 10/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512887 of 10/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Di-isobutyl Phthalate (DIBP)	< L.O.Q.	<0,001	%	0,001		Pass
	Diundecil Phthalate (DHNUP)	< L.O.Q.	<0,001	%	0,01		Pass
	Di-isoheptyl Phthalate (DIHP)	< L.O.Q.	<0,001	%	0,001		Pass
	Bis (2-Methoxyethyl) Phthalate (DMEP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-isopentyl Phthalate (DIPP)	< L.O.Q.	<0,001	%	0,001		Pass
	N-pentyl-isopentyl phthalate (NPIPP)	< L.O.Q.	<0,001	%	0,001		Pass
	1,2-BenzeneDiCarboxilic Acid DiPentyl Ester, Branched and Linear	< L.O.Q.	<0,001	%	0,01		Pass
	Dipentyl Phthalate (DPP)	< L.O.Q.	<0,001	%	0,001		Pass
	Di-n-esil Ftalato (DnHP)	< L.O.Q.	<0,001	%	0,001		Pass
Determination of certain AZO colorants in dyed leathers. Part 1: Determination of certain aromatic amines derived from azo colorants - Test Method: UNI EN ISO 17234-1: 2010 + EC1: 2011 Operating Conditions - Quantitative Detection: GC-MS - Confirmation by HPLC-DAD	**Aromatic amines derived from azodyes on leather**						
	5-nitro-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	o-Aminoazotoluene	< L.O.Q.	<5	mg/kg	5		Pass
	4-Aminobiphenil	< L.O.Q.	<5	mg/kg	5	(1)	Pass
	2,4,5-Trimethylaniline	< L.O.Q.	<5	mg/kg	5		Pass
	4-methoxy-m-phenylenediamine	< L.O.Q.	<5	mg/kg	5		Pass
	4-methyl-m-phenylenediamine	< L.O.Q.	<5	mg/kg	5		Pass
	o-anisidine	< L.O.Q.	<5	mg/kg	5		Pass
	2-Naphthylamine	< L.O.Q.	<5	mg/kg	5	(1)	Pass
	3,3'-Dichlorobenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	3,3'-Dimethoxybenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	4,4'-methylenedi-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	3,3'-Dimethylbenzidine	< L.O.Q.	<5	mg/kg	5		Pass
	4,4'-methylenedianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Methylene-bis-(2-chloroaniline)	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Oxydianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-4'-Thiodianiline	< L.O.Q.	<5	mg/kg	5		Pass
	4-Chloro-o-toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	Benzidine	< L.O.Q.	<5	mg/kg	5		Pass
	o-Toluidine	< L.O.Q.	<5	mg/kg	5		Pass
	4-Chloroaniline	< L.O.Q.	<5	mg/kg	5		Pass
	p-cresidine	< L.O.Q.	<5	mg/kg	5		Pass
	2,4- Xylidine (CAS 95-68-1)	< L.O.Q.	<5	mg/kg	5		Pass
	2,6-Xylidine	< L.O.Q.	<5	mg/kg	5		Pass
	4-Aminoazobenzene	< L.O.Q.	<5	mg/kg	5		Pass
Determination of Chlorophenols content - Test Method: UNI EN ISO 17070: 2007 Operating Conditions - Detection by GC-MS analysis							
	Pentachlorophenol (PCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – Dr. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 10/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512887 of 10/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Tetrachlorophenol (TeCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass
	Trichlorophenol (TCP)	< L.O.Q.	<0,1	mg/kg	0,1		Pass
Determination of chlorinated hydrocarbons in leather. Chromatographic method for short-chain chlorinated paraffins (SCCP). - Test Method: ISO/FDIS 18219: 2015 Operating Conditions - Ultrasonic extraction procedure: 60°C for 1h. - Determination by GC-ECNI-MS analysis.	**Amount of extracted SCCP (C10-C13)**	< L.O.Q.	<10	mg/kg	10		Pass
Determination of of Chromium (VI) content - Test Method: UNI EN ISO 17075: 2008 Operating Conditions - Determination by UV-VIS spectrophotometer - Result reported on the basis of Dry Matter	**Chromium [Cr VI]**	< L.O.Q.	<3,0	mg/kg	3,0		Pass
Chemical determination of metal content Part 2: Total metal content - Test Method: UNI EN ISO 17072-2: 2011 Operating Conditions - Microwave digestion - Determination by ICP-MS analysis - Result reported on the basis of Dry Matter	**Metals**						
	Total Cadmium [Cd] Content	< L.O.Q.	<0,5	mg/kg	0,02		Pass
	Total Lead [Pb] Content	< L.O.Q.	<0,5	mg/kg	0,5		Pass
	Total Mercury [Hg] Content	< L.O.Q.	<0,5	mg/kg	0,001		Pass
	Total Arsenic [As] Content	< L.O.Q.	<0,5	mg/kg	0,005		Pass
Solvent extraction and GC-MS analisys	**Chlorinated solvents**						
	Chloroform	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Pentachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Carbon tetrachloride	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,1-Trichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,2-Trichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,1,2-Tetrachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1,2,2-Tetrachloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1-Dichloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Trichloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Tetrachloroethylene	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,1-Dichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	1,2-Dichloroethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass
	Dichloromethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – DR. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT	02/07/2015
TESTING DATES FROM	02/07/2015 TO 10/07/2015
PAGE	5 of 5

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512887 of 10/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Tetrachloromethane	< L.O.Q.	<0,01	mg/kg	0,01		Pass

Notes
< L.O.Q.: Not detectable analytically
(1) = If the use of this analytical method has detected 4-aminodiphenyl and/or 2-naphtylamine, according to the current state of knowledge it cannot be unequivocally confirmed without additional information that azo colorants which release amines were used.
" The assessment is obtained by the comparison between the Result of the analysis ("Result" column) and the required Limit ("Limit" column).
DNV and ICEC certifications are applied to following processes: "Provision of laboratory tests and related technical and regulatory assistance for leather, textiles, accessories, leather goods articles, footwear, Apparel and related components / raw materials."

Limits: Values indicated in the Limits column refer to the requirements stated in the document named in the "Requirements" field of the "Denomination" section
U.M.: Units of Measurement
L.O.Q.: Limit of Quantification
Assess.: Assessment
Pass: the test result is conform to the standard required
Fail: the test result is not conform to the standard required
N/A: it is not possible to carry out the test, or the test result can not be defined as "Pass" or "Fail"
The evaluations of change in color are carried out in accordance with ISO 105-A02, the evaluations of color staining are carried out in accordance with ISO 105-A03
BWS: Blue Wool Scale
GSR: Grey Scale Rating

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI - DR. VERENA BARTALINI - 1866 - CHIMICO - TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

PAGE 1 of 4

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512766 of 16/07/2015

DENOMINATION
Analyses purchased by: Thomas BROYD
Purchase Order: price included in report 1512887
Article: BUTTON D
Colour: ANIMALIER

Type of Material: Button
Requirements: BERBRAND_PACCHETTO
DETOX_OFFERTA N. 15-217/0 DEL 26/06/2015
Sampling: done by the client

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Sample 1512766.01						
Solvent extraction and GC-MS analisys							
	Flame retardants						
	Penta-bromodiphenyl ether (PentaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Octa-bromodiphenyl ether (OctaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Decabromodiphenyl ether (DecaBDE)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris (1-aziridinyl)-phosphine oxide (TEPA)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris (2.3-dibromoproyl)-phosphate (TRIS)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Polybromominatedbiphenyls (PBB)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Tris(2-chloroethyl)phosphate (TCEP)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Exabromocyclodecane (HBCDD)	< L.O.Q.	<50	mg/kg	50	BVG	Pass
	Brominated and Clorinated flame retardants						
	Decabromo biphenyl (DecaBB)	< L.O.Q.		mg/kg	50	BVG	
	Dibromo biphenyls (DiBB)	< L.O.Q.		mg/kg	50	BVG	
	Dibromo diphenyl ethers (DiBDE)	< L.O.Q.		mg/kg	50	BVG	
	Heptabromo biphenyls (HeptaBB)	< L.O.Q.		mg/kg	50	BVG	
	Heptabromo diphenyl ethers (HeptaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Hexabromo biphenyls (HexaBB)	< L.O.Q.		mg/kg	50	BVG	
	Hexabromo diphenyl ethers (HexaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Monobromo biphenyls (MonoBB)	< L.O.Q.		mg/kg	50	BVG	
	Monobromo diphenyl ethers (MonoBDE)	< L.O.Q.		mg/kg	50	BVG	
	Nonabromo biphenyls (NonaBB)	< L.O.Q.		mg/kg	50	BVG	
	Nonabromo diphenyl ethers (NonaBDE)	< L.O.Q.		mg/kg	50	BVG	
	Octabromo biphenyls (OctaBB)	< L.O.Q.		mg/kg	50	BVG	
	Pentabromo biphenyls (PentaBB)	< L.O.Q.		mg/kg	50	BVG	
	Polybrominated diphenyl ethers (PBDEs)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo biphenyls (TetraBB)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo diphenyl ethers (TetraBDE)	< L.O.Q.		mg/kg	50	BVG	
	Tetrabromo-bisphenol A (TBBPA)	< L.O.Q.		mg/kg	50	BVG	
	Tribromo biphenyls (TriBB)	< L.O.Q.		mg/kg	50	BVG	
	Tribromo diphenyl ethers (TriBDE)	< L.O.Q.		mg/kg	50	BVG	
	Tris(2,3-Dibromopropyl)-Phosphate (TRIS)	< L.O.Q.		mg/kg	50	BVG	
	Antimony trioxide	< L.O.Q.		mg/kg	50	BVG	
	Boric acid	< L.O.Q.		mg/kg	50	BVG	
	Boron trioxide	< L.O.Q.		mg/kg	50	BVG	
	Sodium tetraborate	< L.O.Q.		mg/kg	50	BVG	
	Tri-o-cresyl phosphate	< L.O.Q.		mg/kg	50	BVG	

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI · DR. VERENA BARTALINI · 1866 · CHIMICO · TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST SRL
CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512766 of 16/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	Tris(1,3-dichloro-2-propyl)phosphate (TDCPP)	< L.O.Q.		mg/kg	50	BVG	
Determination of selected Organotic Compounds - Gas chromatographic method - Test method: UNI EN ISO 17353: 2006							
	Organotin compounds						
	DBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	TBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	TPhT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	DOT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	MBT	< L.O.Q.	<0,2	mg/kg	0,2	BVG	Pass
	DPhT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	MOT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TCyT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TeET	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TeBT	< L.O.Q.	<0,2	mg/kg	0,02	BVG	Pass
	TPT	< L.O.Q.	<0,2	mg/kg	0,05	BVG	Pass
Perfluorinated surfactants - Test Method: UNI CEN TS 15968: 2010 Operating Conditions - Methanol ultrasonic extraction, 2h at 60°C - Determination by LC-MS MS							
	PFCs ionic						
	2H,2H,3H,3H-perfluoroundecanoate (H4PFUnA)	< L.O.Q.		µg/m2	1	BVG	
	2H,2H-perfluorodecanoate (H2PFDA)	< L.O.Q.		µg/m2	1	BVG	
	7H-dodecafluoroheptanoate (HPFHpA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoro-3,7-dimethyloctanoate (PF-3,7-DMOA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorobutane sulfonate (PFBS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorobutanoate (PFBA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorodecane sulfonate (PFDS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorodecanoate (PFDA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorododecanoate (PFDoA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroheptane sulfonate (PFHpS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroheptanoate (PFHpA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorohexane sulfonate (PFHxS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorohexanoate (PFHxA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorononanoate (PFNA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctane sulfonamide (PFOSA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctane sulfonate (PFOS)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorooctanoate (PFOA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoropentanoate (PFPA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorotetradecanoate (PFTeA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluorotridecanoate (PFTrA)	< L.O.Q.		µg/m2	1	BVG	
	Perfluoroundecanoate (PFUnA)	< L.O.Q.		µg/m2	1	BVG	
	PFCs volatile						
	1H,1H,2H,2H-perfluoro-1-decanol (8:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI DR. VERENA BARTALINI 1866 CHIMICO TOSCANA

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT 02/07/2015

TESTING DATES FROM 02/07/2015 TO 16/07/2015

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512766 of 16/07/2015

TEST METHOD	PARAMETER	RESULT '	LIMITS	U.M.	L.O.Q.	NOTES	ASSESS."
	1H,1H,2H,2H-perfluoro-1-dodecanol (10:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoro-1-hexanol (4:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoro-1-oktanol (6:2 FTOH)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluoroctylacrylate (6:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluorodecylacrylate (8:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	1H,1H,2H,2H-perfluorododecylacrylate (10:2 FTA)	< L.O.Q.		µg/m2	1	BVG	
	2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	< L.O.Q.		µg/m2	1	BVG	
	2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	< L.O.Q.		µg/m2	1	BVG	
	N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	< L.O.Q.		µg/m2	1	BVG	
	N-methylperfluoro-1-octansulfonamide (MeFOSA)	< L.O.Q.		µg/m2	1	BVG	
Solvent extraction and GC-MS analisys							
	Chlorobenzenes						
	Chlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,3-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,4-Dichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,4-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,3,5-Trichlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3,4-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,3,5-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	1,2,4,5-Tetrachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Pentachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Hexachlorobenzene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	3-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	4-Chlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,3-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,4-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,5-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,6-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	3,4-Dichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,3,6-Trichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	2,4,5-Trichlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Tetrachlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass
	Pentachlorotoluene	< L.O.Q.	<0,01	mg/kg	0,01	BVG	Pass

Continuing...

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – DR. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)

CERTEST laboratory is part of BUREAU VERITAS Network

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV =ISO 9001: 2008=

COMPANY WITH LABORATORY CERTIFIED BY ICEC =According to ICEC TS_406=

RECEIPT	02/07/2015
TESTING DATES FROM	02/07/2015 TO 16/07/2015
PAGE	4 of 4

COMMITTENT
Berbrand Srl
Via Lega Lombarda,6
25030 ADRO BS

LABORATORY REPORT n° 1512766 of 16/07/2015

Notes
< L.O.Q.: Not detectable analytically
BVG = Test executed at Bureau Veritas Germany - Wilhelm-Hennemann-Str. 8, 19061 Schwerin, Germany
'' The assessment is obtained by the comparison between the Result of the analysis (''Result'' column) and the required Limit (''Limit'' column).
DNV and ICEC certifications are applied to following processes: "Provision of laboratory tests and related technical and regulatory assistance for leather, textiles, accessories, leather goods articles, footwear, Apparel and related components / raw materials."

Limits: Values indicated in the Limits column refer to the requirements stated in the document named in the ''Requirements'' field of the "Denomination" section
U.M.: Units of Measurement
L.O.Q.: Limit of Quantification
Assess.: Assessment
Pass: the test result is conform to the standard required
Fail: the test result is not conform to the standard required
N/A: it is not possible to carry out the test, or the test result can not be defined as "Pass" or "Fail"
The evaluations of change in color are carried out in accordance with ISO 105-A02, the evaluations of color staining are carried out in accordance with ISO 105-A03
BWS: Blue Wool Scale
GSR: Grey Scale Rating

Approved on behalf of CERTEST S.r.l. by:
Dr.ssa Verena BARTALINI – *Laboratory Manager*

ORDINE DEI CHIMICI TOSCANA – DR. VERENA BARTALINI – 1866 – CHIMICO

Analysis valid for all legal purposes (R.D. 1 March 1928 n. 842)