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SAMPLE IDENTIFICATION (#):**A SAMPLE F3 UNION BLACK DYNAMIC COLOR****THIS DOCUMENT CONTAINS THE FOLLOWING TESTS:**

Code	Test	Test Method
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	MIP_CE0038_rev1:2021
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	MIP_CE0073_rev0:2021 - ref. Reg. (EU) 2020/2081
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	AfPS GS 2019:01

General Remarks

Results refer exclusively to the materials presented by the Client as received; does not carry out withdrawals and / or samplings and, therefore, any representativeness of the analyzed material, also with respect to lots, is exclusive responsibility of the customer.

(#) Data provided by the Client. Moreover, when information is provided by the Client and can influence the validity of the results, the Laboratory declines all responsibilities.

The expanded uncertainty, available on request, is calculated with a coverage factor $k=2$ for a confidence level of 95%.

For qualitative tests, or tests where final result is assessed by numerical indexes, the expanded uncertainty is not applicable.

Materials delivered to will be kept available to the Customer for a period of 3 (three) months after completion of the Services; after this period all materials will be disposed of by

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Decision rule

Unless otherwise requested by the customer, for physical-mechanical tests, flammability tests and fastness tests, Laboratory defines the Pass/Fail assessment not taking into account the uncertainty associated to the measurement result. Uncertainty of method is available on request.

For all other types of tests, where the decision rule is not defined within the test method, laboratory use a decision rule based on "guard band" approach. The rule is described in the "conformity analysis" procedure adopting a coverage factor K unilateral equal to 1,645 for a confidence level of 95%.

Technical Manager


Summary Results Evaluation based on PRSL

Compliance to Regulation EU 2020/2081

Rev. 1 del 30/11/2019

<i>Item</i>	<i>Sample</i>	<i>Pass</i>	<i>Fail</i>
A	SAMPLE F3 UNION BLACK DYNAMIC COLOR	67 Pass	---

Evaluation Results Sample

SAMPLE F3 UNION BLACK DYNAMIC COLOR

Rev. 1 del 30/11/2019

Item	Test Method	Parameter	Limits	Value	P/F
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Antimony	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Arsenic	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Barium (soluble)	<=500	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Cadmium	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Chromium VI	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Cobalt	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Copper (soluble)	<=250	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Lead	<=0,7	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Mercury	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Nickel	<=5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Organometallic tin	<=0,5	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Selenium	<=2	Not Detectable	PASS
CE0038	Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)	Zinc (soluble)	<=2000	Not Detectable	PASS

CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	2,4,5-trimethylaniline (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	2,4-xylidine	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	2,6-xylidine	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	2-methyl-p-phenylenediamine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	2-naphtylamine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	3,3'-dichlorobenzidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	3,3'-dimethoxybenzidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	3,3-dimethylbenzidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4,4'-diaminodiphenylmethane (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4,4'-methylene-bis-(2-chloro-aniline) (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4,4'-methylenedi-o-toluidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4,4'-oxydianiline (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4,4'-thiodianiline (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-amino-3-fluorophenol (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-aminoazobenzene (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-aminobiphenyl (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-chloroaniline (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-chloro-o-toluidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-methoxy-m-phenylenediamine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	4-methyl-m-phenylenediamine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	5-nitro-o-toluidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	6-amino-2-ethoxynaphthalene	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	Aniline (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	benzidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	o-aminoazotoluene (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	o-anisidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	o-toluidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	p-cresidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	p-Phenylenediamine (as soluble)	<=5	Not Detectable	PASS

CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	<i>p</i> -Toluidine (as soluble)	<=5	Not Detectable	PASS
CE0073	Tattoos Inks and PMU: determination of certain aromatic amines	sulfanilic acid (as soluble)	<=5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Acenaftene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Acenaphtylene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Anthracene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo(a)Anthracene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo(a)Pyrene	<=0,005	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo(g,h,i)Perylene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo[b]fluoranthene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo[e]Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo[j]fluoranthene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Benzo[k]Fluoranthene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Crysene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Dibenzo(a,e)Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Dibenzo(a,h) Anthracene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Dibenzo(a,h)Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Dibenzo(a,i)Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Dibenzo(a,l)Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Fluoranthene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Fluorene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Indeno(1,2,3-cd)Pyrene	<=0,5	Not Detectable	PASS
CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon	Naphtalene	<=0,5	Not Detectable	PASS

CE0082	<i>Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon</i>	<i>Perylene</i>	<i><=0,5</i>	<i>Not Detectable</i>	PASS
CE0082	<i>Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon</i>	<i>Phenanthrene</i>	<i><=0,5</i>	<i>Not Detectable</i>	PASS
CE0082	<i>Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon</i>	<i>Pyrene</i>	<i><=0,5</i>	<i>Not Detectable</i>	PASS

Begin of Test Report

CE0038 **Tattoos inks and PMU: determination of heavy metals (reg. UE 2020/2081)**Test methods **MIP_CE0038_rev1:2021**

Rev. 0 del 06/04/2020

Testing conditions Total Metals: Acid digestion - microwave oven / Soluble metals: water extraction
 Testing equipment ICP-MS / HPLC-DAD
 Testing date 24/02/2022

Sample identification **SAMPLE F3 UNION BLACK DYNAMIC COLOR**

Heavy metals		Results mg/kg	LOQ -Limit of quantification mg/kg	Maximum allowed concentration Regulation UE 2020/2081 mg/kg
As	Arsenic	< LOQ	0,4	0,5
Ba	Barium (soluble)	< LOQ	0,4	500
Cd	Cadmium	< LOQ	0,4	0,5
Co	Cobalt	< LOQ	0,4	0,5
Cr6	Chromium VI	< LOQ	0,3	0,5
Cu	Copper (soluble)	< LOQ	0,4	250
Hg	Mercury	< LOQ	0,4	0,5
Ni	Nickel	< LOQ	0,4	5
Pb	Lead	< LOQ	0,4	0,7
Se	Selenium	< LOQ	0,4	2
Sb	Antimony	< LOQ	0,4	0,5
Sn	Organometallic tin	< LOQ	0,4	0,5
Zn	Zinc (soluble)	< LOQ	0,4	2000

CE0073	Tattoos Inks and PMU: determination of certain aromatic amines
Test methods	MIP_CE0073_rev0:2021 - ref. Reg. (EU) 2020/2081

Rev. 0 del 06/04/2020

Testing conditions	Amines classified as soluble: methanol extraction / others: buffer extraction with ref. to ISO 14362-1 / ISO 17234-1 and reductive cleavage
Testing equipment	GC-MSMS / LC-MSMS
Testing date	24/02/2022

Sample identification	SAMPLE F3 UNION BLACK DYNAMIC COLOR
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SUBSTANCE	CAS N.	Quantification Limit (LOQ)	Result
<i>p</i> -Phenylenediamine (as soluble)	106-50-3	1 mg/kg	< LOQ
2,4,5-trimethylaniline (as soluble)	137-17-7 / 21436-97-5	1 mg/kg	< LOQ
2,4-xylidine	95-68-1	1 mg/kg	< LOQ
2,6-xylidine	87-62-7	1 mg/kg	< LOQ
2-naphtylamine (as soluble)	91-59-8 / 553-00-4	1 mg/kg	< LOQ
3,3'-dichlorobenzidine (as soluble)	91-94-1	1 mg/kg	< LOQ
4,4'-methylenedi-o-toluidine (as soluble)	838-88-0	1 mg/kg	< LOQ
3,3-dimethylbenzidine (as soluble)	119-93-7	1 mg/kg	< LOQ
3,3'-dimethoxybenzidine (as soluble)	119-90-4	1 mg/kg	< LOQ
4-methyl-m-phenylenediamine (as soluble)	95-80-7	1 mg/kg	< LOQ

4,4'-methylene-bis-(2-chloro-aniline) (as soluble)	101-14-4	1 mg/kg	< LOQ
4,4'-oxydianiline (as soluble)	101-80-4	1 mg/kg	< LOQ
4,4'-thiodianiline (as soluble)	139-65-1	1 mg/kg	< LOQ
4-aminobiphenyl (as soluble)	92-67-1	1 mg/kg	< LOQ
4-aminoazobenzene (as soluble)	60-09-3	1 mg/kg	< LOQ
4-chloroaniline (as soluble)	106-47-8	1 mg/kg	< LOQ
4-chloro-o-toluidine (as soluble)	95-69-2 / 3165-93-3	1 mg/kg	< LOQ
4,4'-diaminodiphenylmethane (as soluble)	101-77-9	1 mg/kg	< LOQ
4-methoxy-m-phenylenediamine (as soluble)	615-05-4 / 39156-41-7	1 mg/kg	< LOQ
5-nitro-o-toluidine (as soluble)	99-55-8	1 mg/kg	< LOQ
Aniline (as soluble)	62-53-3	1 mg/kg	< LOQ
benzidine (as soluble)	92-87-5	1 mg/kg	< LOQ
o-aminoazotoluene (as soluble)	97-56-3	1 mg/kg	< LOQ
o-anisidine (as soluble)	90-04-0	1 mg/kg	< LOQ
o-toluidine (as soluble)	95-53-4	1 mg/kg	< LOQ
p-cresidine (as soluble)	120-71-8	1 mg/kg	< LOQ
4-amino-3-fluorophenol (as soluble)	399-95-1	1 mg/kg	< LOQ
6-amino-2-ethoxynaphthalene	293733-21-8	1 mg/kg	< LOQ
2-methyl-p-phenylenediamine (as soluble)	95-70-5	1 mg/kg	< LOQ
sulfanilic acid (as soluble)	121-57-3	1 mg/kg	< LOQ
p-Toluidine (as soluble)	106-49-0	1 mg/kg	< LOQ

CE0082	Tattoo Inks, PMU and polymers: Determination of Polycyclic Aromatic Hydrocarbon
Test methods	AfPS GS 2019:01

Rev. 0 del 06/04/2020

Testing conditions organic solvent extraction - ultrasonic bath
 Testing equipment GC-MSMS
 Testing date 24/02/2022

Sample identification	SAMPLE F3 UNION BLACK DYNAMIC COLOR
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SUBSTANCE	CAS N.	Quantification Limit (LOQ)	Result
<i>Naphtalene</i>	91-20--3	0,05 mg/kg	< LOQ
<i>Acenaphthylene</i>	208-96-8	0,05 mg/kg	< LOQ
<i>Acenaftene</i>	83-32-9	0,05 mg/kg	< LOQ
<i>Fluorene</i>	86-73-7	0,05 mg/kg	< LOQ
<i>Phenanthrene</i>	85-01-8	0,05 mg/kg	< LOQ
<i>Anthracene</i>	120-12-7	0,05 mg/kg	< LOQ
<i>Fluoranthene</i>	206-44-0	0,05 mg/kg	< LOQ
<i>Pyrene</i>	129-00-0	0,05 mg/kg	< LOQ
<i>Crysene</i>	218-01-9	0,05 mg/kg	< LOQ
<i>Benzo(a)Anthracene</i>	56-55-3	0,05 mg/kg	< LOQ
<i>Benzo[b]fluoranthene</i>	205-99-2	0,05 mg/kg	< LOQ
<i>Benzo[k]Fluoranthene</i>	207-08-9	0,05 mg/kg	< LOQ
<i>Benzo[e]Pyrene</i>	192-97-2	0,05 mg/kg	< LOQ
<i>Benzo(a)Pyrene</i>	50-32-8	0,005 mg/kg	< LOQ
<i>Perylene</i>	198-55-0	0,05 mg/kg	< LOQ
<i>Indeno(1,2,3-cd)Pyrene</i>	193-39-5	0,05 mg/kg	< LOQ
<i>Dibenzo(a,h) Anthracene</i>	53-70-3	0,05 mg/kg	< LOQ
<i>Benzo(g,h,i)Perylene</i>	191-24-2	0,05 mg/kg	< LOQ
<i>Dibenzo(a,l)Pyrene</i>	191-30-0	0,05 mg/kg	< LOQ
<i>Dibenzo(a,e)Pyrene</i>	192-65-4	0,05 mg/kg	< LOQ
<i>Dibenzo(a,i)Pyrene</i>	189-55-9	0,05 mg/kg	< LOQ
<i>Dibenzo(a,h)Pyrene</i>	189-64-0	0,05 mg/kg	< LOQ
<i>Benzo[j]fluoranthene</i>	205-82-3	0,05 mg/kg	< LOQ
		Total amount	< LOQ

End of Test Report