



Textilní zkušební ústav, s.p.

TEXTILNÍ ZKUŠEBNÍ ÚSTAV s.p.
(TEXTILE TESTING INSTITUTE)
CERTIFIKAČNÍ ORGÁN PRO CERTIFIKACI VÝROBKŮ č. 3044
AKREDITOVANÝ ČIA PODLE ČSN EN ISO/IEC 17065:2013
CEJL 480/12, ZÁBRDOVICE, 602 00 BRNO, ČESKÁ REPUBLIKA

FINAL PROTOCOL

No.: COV/24/057-1

Client: Polska Grupa Tekstylna Sp. z o.o., Zeusa 27, 01-497 Warszawa, Poland

Product: fabric NEPTUN

- fabric declared for production of protective clothing, including use as non-fluorescent material of high visibility clothing

Material composition: 50 % cotton/ 50 % polyester

Mass per unit area: 245 g.m⁻², weave: twill

Colour: medium blue, dark blue, navy blue, black, grey, green, white, red wine

Evaluated according to:

- **EN ISO 13688:2013/A1 Protective clothing. General requirements** (art. 4.2, art. 5.3)
- **EN ISO 20471:2013/A1 High visibility clothing – Test method and requirements** (art. 5.3, art. 5.4, art. 5.5.1, art. 5.6.3)
- **Methodical recommendation of SZÚ (National Institute of Czech Republic for public health) No. 1/2000 for assessment of products coming into direct contact with human organism through the skin, pertinently through the mucous membrane (selected parameters)**
- **Additional parameters:** resistance to surface wetting, oil repellency

Conclusion: Evaluated product complies with the requirements of technical specification mentioned above.

Declared levels of additional parameters (resistance to surface wetting, oil repellency) correspond to quality usual.

Terms of protocol application:

This protocol applies to the products mentioned above and can be used only for this product. The protocol must only be published in unshortened form. The Client can publish a part of the protocol only if approved by the Certification body for the certification of products.

Number of pages: 6

Date of protocol issue: 27.03.2024

Certification contract: No. COV/24/12

Protocol issued by:


Ing. Lenka Tomková
certification department

Protocol verified by:


Bc. Hana Výšková
certification department





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1. General data

1.1 Data on the client

The client is a company **Polska Grupa Tekstylna Sp. z o.o., Zeusa 27, 01-497 Warszawa, Poland.** IN: PL 5222709859.

1.2 Data on the product

Evaluated product is textile product - fabric NEPTUN declared for production of protective clothing. Material is declared for production of high visibility clothing – as background non-fluorescent material.

Construction parameters:

Material composition: 50 % cotton/ 50% polyester

Mass per unit area: 245 g.m⁻²; Weave: twill

Colour: medium blue, dark blue, navy blue, black, grey, green, white, red wine

1.3 Data on type of certification

Evaluation of product is performed according to **certification scheme COV TZÚ No. 2/01.04.2020 (based on the scheme 2 ČSN EN ISO/IEC 17067)** - it means type testing and inspection.

The product has already been certified (see certificate no. 19 – 014) and regularly supervised. This is the next cycle of certification.

2. Verification of product conformity with requirements of the technical standard

2.1 Evaluated characteristics

Product mentioned in Art. 1.2 was assessed in selected parameters according to specification mentioned below (requirements for non-fluorescent material):

- **EN ISO 13688:2013 Protective clothing. General requirements** (art. 4.2, art. 5.3)
- **EN ISO 20471:2013/A1 High visibility clothing – Test method and requirements** (art. 5.3, art. 5.4, art. 5.5.1, art. 5.6.3)
- **Methodical recommendation of SZÚ (National Institute of Czech Republic for public health) No. 1/2000 for assessment of products coming into direct contact with human organism through the skin, pertinently through the mucous membrane** (selected parameters from Table No.1)
- **Additional parameters:** resistance to surface wetting, oil repellency





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Used test methods are described in Table No. 1.

Table No. 1: Evaluated characteristics and test methods

Characteristic		Test method
Characteristics tested according to EN ISO 13688:2013/A1		
Art. 4.2	pH value	EN ISO 3071
Art. 4.2	Azo colorants content	EN ISO 14362-1
Art. 5.3	Dimensional change after 5 cycles of domestic washing 60±3°C and drying	EN ISO 5077, EN ISO 3759, EN ISO 6330
Characteristics tested according to EN ISO 20471:2013/A1		
Art. 5.3	Colour fastness: - rubbing (dry) - perspiration - washing - dry cleaning - ironing	EN ISO 105-X12 EN ISO 105-E04 EN ISO 105-C06 EN ISO 105-D01 EN ISO 105-X11
Art. 5.4	Dimensional change after 5 cycles of domestic washing 60±3°C and drying	EN ISO 5077, EN ISO 3759, EN ISO 6330
Art. 5.5.1	Tensile strength	EN ISO 13934-1
Art. 5.6.3	Water vapour resistance	EN ISO 11092
Characteristics tested according to Methodical recommendation of SZÚ No. 1/2000		
Formaldehyde content		EN ISO 14184-1
pH value		EN ISO 3071
Heavy metals content		EN ISO 105-E04 AA, AE spectroscopy
Colour fastness to rubbing		EN ISO 105-X12
Colour fastness to perspiration		EN ISO 105-E04
Additional parameters		
Resistance to surface wetting		EN ISO 4920
Oil repellency		EN ISO 14419

2.2 Test results

Test results of assessed parameters are shown in Tables No. 2 - 5.

Table No. 2: Evaluated characteristics and test results – NEPTUN (EN ISO 13688/A1)

Art.	Characteristic	Measur. unit	Value required	Value identified	A.
5.3	Dimensional change after 5 cycles of washing 60±3°C and drying - warp / weft	%	max. ±3 / ±3	-2,5 / -3,0	S
4.2	pH value	-	3,5 - 9,5	6,3	S
4.2	Azo colorants content	mg.kg ⁻¹	< 30	< 30	S

Legend : A – assessment; S – satisfy; < - detection limit of the method





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Table No. 3: Evaluated characteristics and test results – NEPTUN (EN ISO 20471/A1)

Art.	Characteristic	Measur. unit	Value required	Value identified						A.
				green	blue	black	grey	white	red wine	
5.3	Colour fastness	grade grey scale	min. 4	4-5	4-5	4-5	4	-	4	S
	- rubbing: • dry		4/4	5/4-5	4-5/4-5	5/4	5/4	5/5	4-5/4	S
	- perspiration: • acid		4/4	5/4-5	4-5/4-5	5/4	5/4	5/5	4-5/4	S
	• alkaline		-/4	5/4-5	4/4-5	5/4	4-5/4-5	-	4-5/4	S
	- washing at 60°C		-/4	5/4-5	5/4-5	5/4	5/4	-	5/4-5	S
	- dry cleaning		-/4	5/4-5	5/5	5/4-5	5/4-5	-	4-5/5	S
5.4	Dimensional change after 5 cycles of domestic washing 60±3°C and drying	%	max. ±3 / ±3	-2,5 / -3,0						S
5.5.1	Tensile strength	N	min. 100	1900 / 600						S
5.6.3	Water vapour resistance R_{et}	m ² .Pa.W ⁻¹	$R_{et} \leq 5$	4,8*						S

Legend : A – assessment; S – satisfy; - white colour is not assessed; * - tested on NEPTUN SALVATOR

Table No. 4: Evaluated characteristics and test results – NEPTUN (SZÚ No. 1/2000)

Characteristic	Measur. unit	Value required	Value identified	A.
Formaldehyde content	mg.kg ⁻¹	max. 75	see limits of Oeko- tex certificate*	S
pH value	-	4,5 - 7,5	6,3	S
Content of heavy metals in extract	mg.kg ⁻¹	max.	see limits of Oeko- tex certificate*	S
- arsenic (As)		1,0		S
- plumbum (Pb)		1,0		S
- cadmium (Cd)		0,1		S
- mercury (Hg)		0,02		S
- chrome total (Cr)		2,00		S
- chrome hexavalent Cr ^{VI})		undetectable		S
- cobalt (Co)		4,00		S
- copper (Cu)		50,0		S
- nickel(Ni)		4,00		S
Colour fastness	grade grey scale	min.		
- to rubbing • dry		3-4	4	S
• wet		2-3	3-4	S
- to perspiration • alkaline		3-4/3-4	4-5/4	S
• acid		3-4/3-4	4-5/4	S

Legend : A - assessment; S – satisfy; *- see Oeko-tex® Standard 100, class II No. 25.3.0207

** - The color fastness values are given as the worst result of the tested color variants





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Table No. 5: Evaluated characteristics and test results – **NEPTUN** - additional parameters

Characteristic	Measur. unit	Value required	Value identified	A.
Resistance to surface wetting - new material - material after 3 cycles of domestic washing 60°C	wetting grade	-	5 4	D
Oil repellency - new material - material after 3 cycles of domestic washing 60°C	rating number	-	6 4	D

Legend : A – assessment; D - declared value. **Declared value corresponds to quality usual.**

2.3 Assessment of test results

Tested fabric NEPTUN meets requirements of following technical specification.

- **EN ISO 13688:2013/A1 Protective clothing. General requirements** (art. 4.2, art. 5.3)
- **EN ISO 20471:2013/A1 High visibility clothing – Test method and requirements** (art. 5.3, art. 5.4, art. 5.5.1, art. 5.6.3)
- **Methodical recommendation of SZÚ (National Institute of Czech Republic for public health) No. 1/2000 for assessment of products coming into direct contact with human organism through the skin, pertinently through the mucous membrane** (Table No. 1: selected parameters – pH value, formaldehyde content, heavy metals content, colour fastness to rubbing and perspiration)
- **Assessed additional parameters (resistance to surface wetting, oil repellency) correspond to quality usual**

3. Conclusions

On the base of test results it can be stated that assessed fabric NEPTUN meets the requirements of technical specification EN ISO 13688/A1 and Methodical recommendation of SZÚ No. 1/2000 and EN ISO 20471:2013/A1 for non-fluorescent materials.

The product coming into direct contact with skin does not present health hazard according to EN ISO 13688/A1 and Methodical recommendation of SZÚ No. 1/2000.

The additional parameters meet good level of quality and they correspond to requirements for quality usual.

If the material is cleaned in industrial laundries, its behaviour (colorfastness, shrinkage) should be verified after industrial washing. On the base of findings mentioned in this Final protocol the Certificate can be issued.

The inspection shall be carried out by testing of some important characteristics of product once a year. The inspection can be carried out at random too. Inspection report shall be elaborated and will be handed over to the certificate holder.

The validity of Certificate is conditioned by satisfactory results of inspection.





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4. Documents applied for this Final protocol

1. Application for certification No. COV/24/057-1 of 12.02.2024.
2. Technical specification mentioned in art. 2 of this report.
3. Test report issued by accredited laboratory of TZÚ Brno:
 - AZL 19/0363 of 23.04.2019
 - AZL 20/0814 of 31.07.2020
 - AZL 22/0384 of 25.04.2022
 - AZL 24/0223 of 07.03.2024
4. Certificate Oeko-tex Standard 100, class II issued INNOVATEX, Hungary:
 - No. 25.3.0207
5. Test report issued by accredited laboratory of Łukasiewicz Lodz Institute of technology, Poland:
 - No. BL-AI 356/635/2022/A of 31.08.2022





TEXTILNÍ ZKUŠEBNÍ ÚSTAV, s.p.
(TEXTILE TESTING INSTITUTE)

Cejl 480/12, Zábrdovice, 602 00 Brno, Czech Republic
Certification Body for the certification of products No. 3044
accredited by CAI according to EN ISO/IEC 17065:2012

issues

to the client: **Polska Grupa Tekstylna Sp. z o.o., Zeusa 27, 01-497 Warszawa, Poland**
ID: PL 5222709859

CERTIFICATE

No. 24 - 023



product:

fabric NEPTUN

fabric declared for production of protective clothing

material composition: 50 % cotton/ 50 % polyester, mass per unit area: 245 g.m⁻², weave: twill

colour: medium blue, dark blue, navy blue, black, green, grey, white, red wine

This certificate shows the conformity of the product with the following technical specification:

- **EN ISO 20471:2013/A1 High visibility clothing - Test methods and requirements** (requirements for non-fluorescent material - art. 5.3, art. 5.4, art. 5.5.1, art. 5.6.3)
- **EN ISO 13688:2013/A1 Protective clothing - General requirements** (art. 4.2, art. 5.3)
- **Methodical recommendation of SZÚ (National Institute of Czech Republic for public health) No. 1/2000 for assessment of products coming into direct contact with human organism through the skin, pertinently through the mucous membrane, Table No. 1**
- **Additional parameters:** resistance to surface wetting, oil repellency

Certification system: Type testing and inspection (scheme COV TZÚ No. 2/01.04.2020 based on scheme 2 EN ISO/IEC 17067).

This Certificate is issued within the scope of accreditation of Certification body. The base for this Certificate is Final report No. COV/24/057-1 of 27.03.2024 issued by Certification body Textile Testing Institute in Brno. This Final report is the inseparable part of the certificate.

Certificate issued: Brno 27.03.2024

Validity up to: 31.03.2027



Ing. Svatava Horácková
Head of Certification Body



TEXTILNÍ ZKUŠEBNÍ ÚSTAV, s.p.
Cejl 480/12, Zábrdovice, 602 00 Brno, Česká republika
Certifikační orgán pro certifikaci výrobků č. 3044
akreditovaný ČIA podle ČSN EN ISO/IEC 17065:2013

vydává

zadavateli: **Polska Grupa Tekstylna Sp. z o.o. Zeusa 27, 01-497 Warszawa, Polsko**
IČ: PL 5222709859

CERTIFIKÁT

č. 24 – 023



výrobek:

tkanina NEPTUN

tkanina určená na výrobu ochranných oděvů
materiálové složení: 50 % bavlna/ 50 % polyester; plošná hmotnost: 245 g.m⁻², vazba: kepr
barva: středně modrá, tmavě modrá, modrá navy, černá, šedá, zelená, bílá, vínově červená

Tímto certifikátem se potvrzuje shoda výrobku s následující technickou specifikací:

- **ČSN EN ISO 20471:2013/A1 (EN ISO 20471:2013/A1) Oděvy s vysokou viditelností - Zkušební metody a požadavky** (požadavky na nefluorescenční materiál – čl. 5.3, čl. 5.4, čl. 5.5.1, čl. 5.6.3)
- **ČSN EN ISO 13688:2014/A1 (EN ISO 13688:2013/A1) Ochranné oděvy. Obecné požadavky** (čl. 4.2, čl. 5.3)
- **Metodické doporučení SZÚ č. 1/2000 k posuzování výrobků, které přicházejí do přímého styku s lidským organismem prostřednictvím kůže, případně sliznic, Tabulka č. 1**
- **Doplňkové parametry:** odolnost proti povrchovému smáčení, oleofobnost

Certifikační systém: zkoušení typu a dozor nad výrobkem (certifikační schéma COV TZÚ
č. 2/01.04.2020 vychází ze schématu 2 ČSN EN ISO/IEC 17067).

Certifikát je vydán v rozsahu akreditace certifikačního orgánu. Podkladem pro certifikát je závěrečný protokol č. COV/24/057-1 ze dne 27.03.2024 vydaný COV TZÚ Brno. Závěrečný protokol tvoří nedílnou součást tohoto certifikátu.

Certifikát vydán v Brně, dne: 27.03.2024

Platnost do: 31.03.2027



Ing. Svatava Horácková
vedoucí certifikační oddělení