ANEXA 2

ANALIZE LABORATOR MIXTURE ASFALTICE

26 pag



PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** *LABORATOR* ***Adress/*** *Adresa DN 7 Arad - Deva,* ***Vladimirescu KM 2, FN, Arad***	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1525 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 197-198 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 197-198 stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18** - **03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura **-according to/** conform SR 174-1 **min.4.0 - max 5.0 %**

-obtained/ realizat 4.26 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**1.4**	**2.5**	**5.8**	**14.1**	**18.2**	**27.8**	**42.3**	**67.4**	**92.3**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2250	2153
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	11.74
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	3.60
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	3.26
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	9.46

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order)
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCĂRI ÎN CONSTRUCTII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ *LABORATOR* *Adress/ Adresa DN 7 Arad - Deva,* *Vladimirescu KM 2, FN, Arad*	Authorization no. /Autorizatie nr: 3299/10.10.2017

DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 197-198 stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de legatura** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 197-198 stg.**

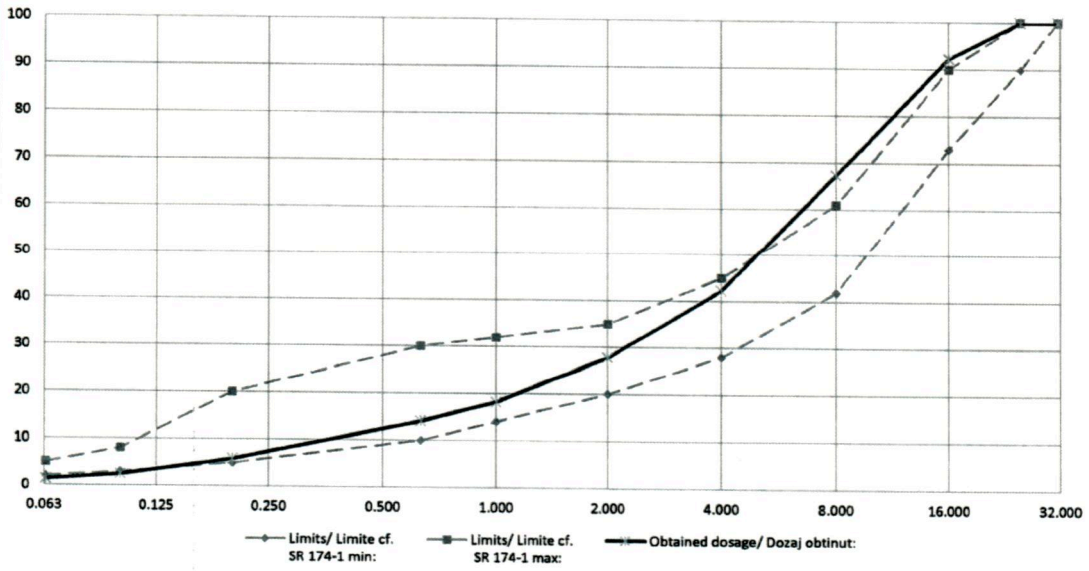
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	Formulas/ Formule	Test results/ Valori obtinute	Grading after ignition/ Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	Retained/ Rest [g]	Retained/ Rest [%]	Passing through/ Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.5	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4409.0	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1334.5	16.0	97.9	7.7	92.3
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4343.0	8	315.6	24.9	67.4
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1268.5	4	318.4	25.1	42.3
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	183.8	14.5	27.8
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.3	1	121.7	9.6	18.2
				0.630	52.8	4.2	14.1
				0.200	104.3	8.2	5.8
				0.100	42.6	3.4	2.5
				0.063	13.9	1.1	1.4
				T 0.063	17.5	1.4	

m_1 = 1268.50 TRUE



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tehn. Ionut Florin Cartis

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LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 1524 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 396-400 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 396-400 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0 %**

-obtained/ realizat 3.93 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**1.4**	**3.2**	**10.6**	**16.8**	**50.6**	**61.6**	**83.0**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2113
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	14.33
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	4.02
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	9.58

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order).
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 396-400 dr. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de baza** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

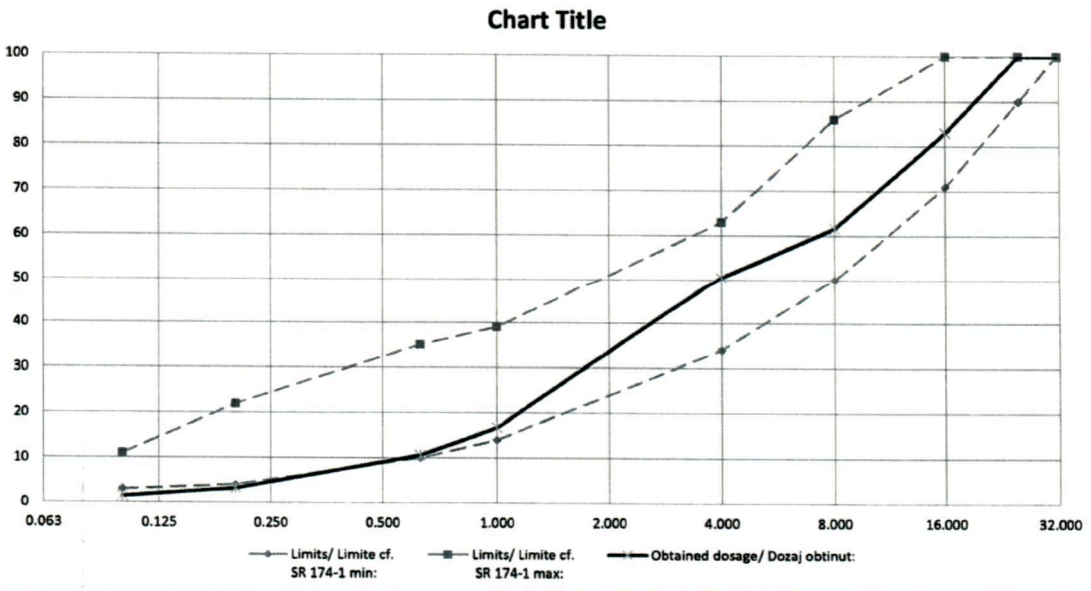
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 396-400 dr.**

Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3128.2		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4408.0		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1279.8	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4343.8	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1215.6	16	206.6	17.0	83.0
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	260.1	21.4	61.6
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	3.9	4	133.8	11.0	50.6
				1	411.2	33.8	16.8
				0.630	74.8	6.2	10.6
				0.200	90.1	7.4	3.2
				0.100	21.9	1.8	1.4
				T 0.100	17.1	1.4	
				m_t =	1215.60	TRUE	



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Tel: 021/3126500; Fax: 021/3126501

LABORATORY/ *LABORATOR*
Adress/ Adresa DN 7 Arad - Deva, ***Vladimirescu KM 2, FN, Arad***

Authorization no. /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1523 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 842-849 stg, dr,stg** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 842-849 stg. ,dr., stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18** - **03-12-18**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0** %

-obtained/ realizat 3.69 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**2.8**	**5.3**	**12.8**	**17.5**	**41.2**	**56.9**	**82.3**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2262
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	13.37
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	2.95
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	5.66

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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Verified / Verificat
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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 842-849 stg, dr,stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: AB 2 **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: 23.11. 2018

Road layer/ Strat rutier: strat de baza

Sampling place/ Locul prelevarii: DN76 Varfurile - Stei Pichet 842-849 stg. ,dr., stg.

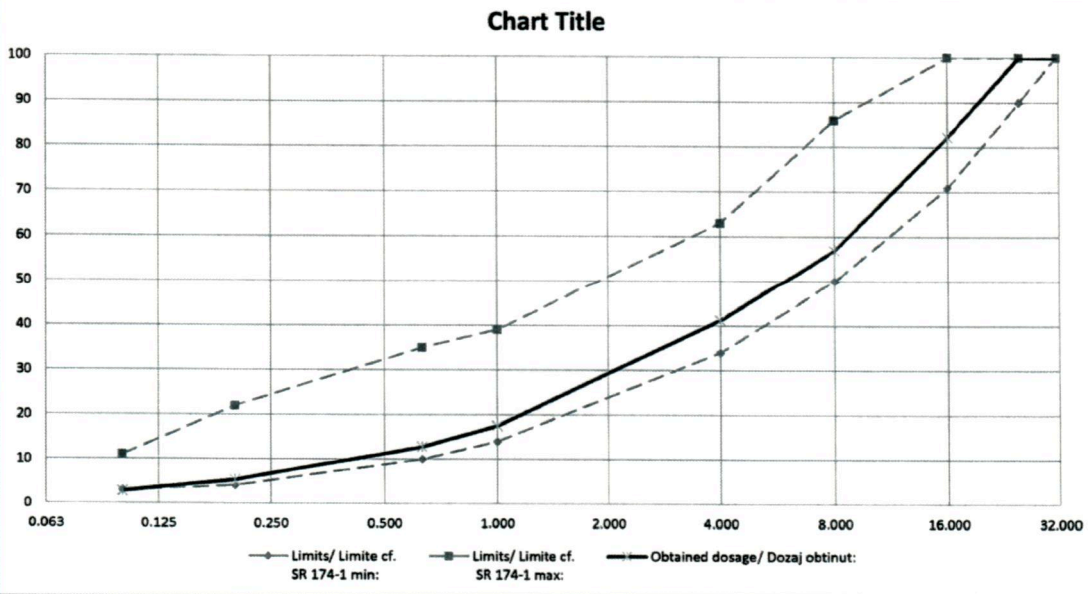
Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.7		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4379.5		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1304.8	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4317.1	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1242.4	16	220.6	17.8	82.3
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	314.4	25.3	56.9
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	3.7	4	195.5	15.7	41.2
				1	294.4	23.7	17.5
				0.630	58.8	4.7	12.8
				0.200	92.7	7.5	5.3
				0.100	31.7	2.6	2.8
				T 0.100	34.3	2.8	
				m_t =	1242.40	TRUE	



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Adress/ Adresa DN 7 Arad - Deva, ***Vladimirescu KM 2, FN, Arad***

Authorization no. /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1522 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 425-426 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 425 - 426 stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0 %**

-obtained/ realizat 3.82 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/ Treceri %**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**4.6**	**9.1**	**19.9**	**25.2**	**47.6**	**63.3**	**83.7**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2232
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	12.42
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	4.08
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	7.60

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
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Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

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SC PORR CONSTRUCT SRL **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** *LABORATOR* ***Adress/** Adresa DN 7 Arad - Deva, **Vladimirescu KM 2, FN, Arad***	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 425-426 stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de baza** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 425 - 426 stg.**

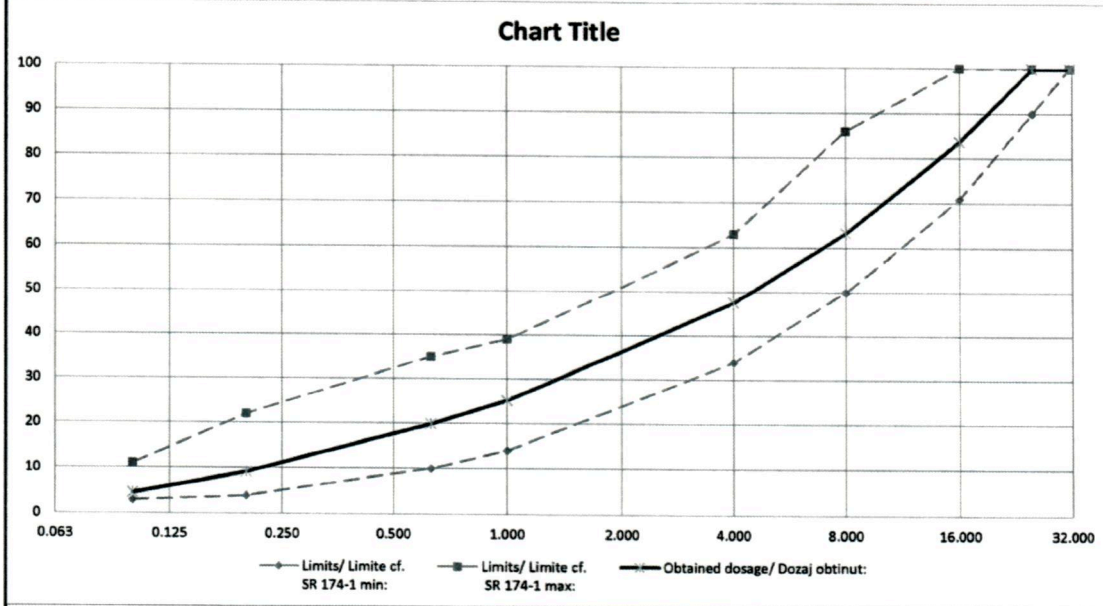
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3129.2		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4425.7		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1296.5	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4362.1	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1232.9	16	201.1	16.3	83.7
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	251.9	20.4	63.3
Bitumen percent/ Procent de bitum **(B)**	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	3.8	4	193.6	15.7	47.6
				1	276.1	22.4	25.2
				0.630	64.8	5.3	19.9
				0.200	133.4	10.8	9.1
				0.100	55.7	4.5	4.6
				T 0.100	56.3	4.6	

m_1 = 1232.90 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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SC PORR CONSTRUCT SRL
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LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 1521 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 645-649 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 645-649 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0** %

-obtained/ realizat 3.96 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**5.2**	**9.5**	**18.7**	**24.0**	**51.0**	**64.3**	**86.7**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2203
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	10.87
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	2.50
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	7.23

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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ing. Adrian CRISAN-PANTEA

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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 645-649 dr.

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2**

Sampling date/ Data prelevarii: **23.11. 2018**

Strewn place/ Locul asternerii: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Road layer/ Strat rutier: **strat de baza**

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 645-649 dr.**

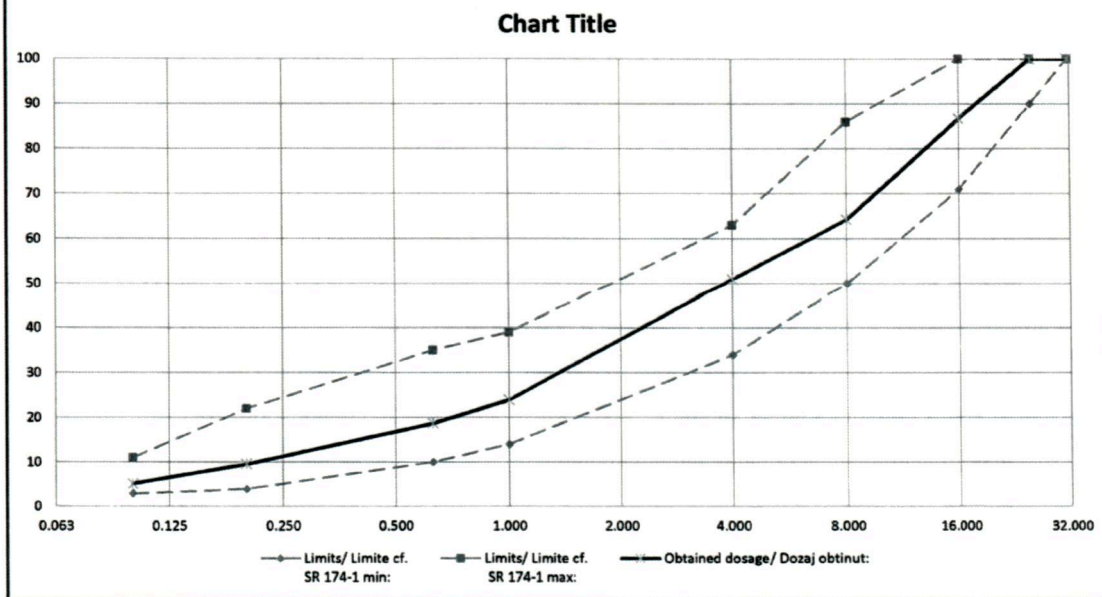
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.9		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4519.6		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1444.7	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4446.6	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1371.7	16	182.7	13.3	86.7
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	307.7	22.4	64.3
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.0	4	181.5	13.2	51.0
				1	371.0	27.1	24.0
				0.630	72.6	5.3	18.7
				0.200	125.5	9.2	9.5
				0.100	59.3	4.3	5.2
				T 0.100	71.4	5.2	

m_t = 1371.70 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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Test Report No. / Raport de Incercare Nr. 1520 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 661 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 661 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0 %**

-obtained/ realizat 3.57 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**3.8**	**7.0**	**16.5**	**21.8**	**43.3**	**55.4**	**87.7**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2205
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	9.08
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	2.59
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	8.24

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval).
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Acest raport de încercare cuprinde 1 pagina (This official report of testing has 1 page)

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ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 661 dr.

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2**

Strewn place/ Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de baza**

Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 661 dr.**

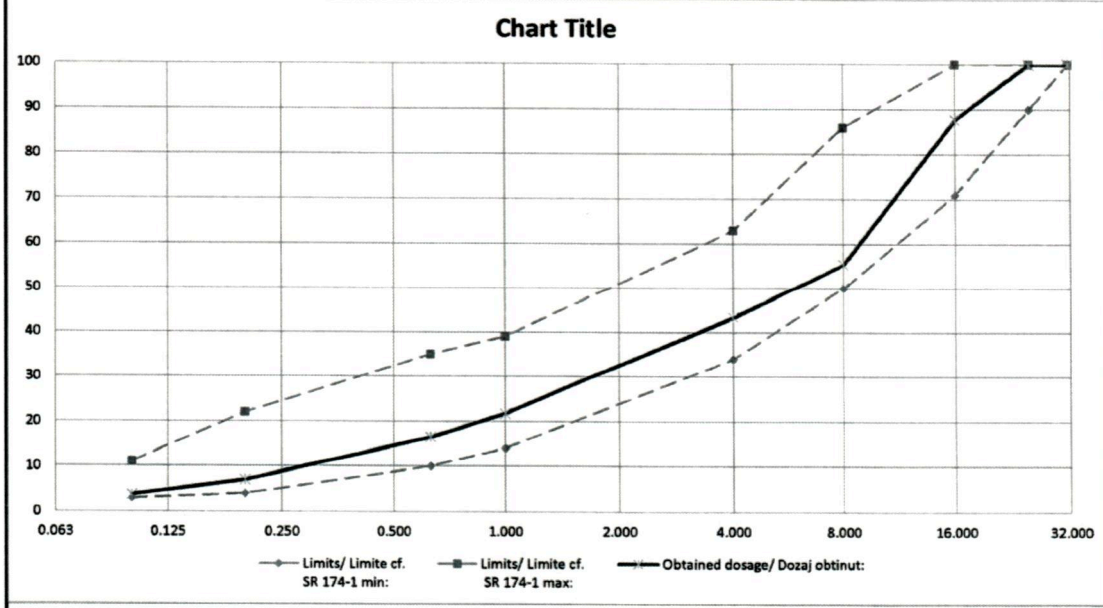
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3128.9		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4443.6		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1314.7	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4382.3	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1253.4	16	154.8	12.4	87.7
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	404.6	32.3	55.4
Bitumen percent/ Procent de bitum (B)	%	[($W_{s,w}$-W_a)/$W_{s,w}$*100]-C_F	3.6	4	151.3	12.1	43.3
				1	269.7	21.5	21.8
				0.630	66.8	5.3	16.5
				0.200	118.1	9.4	7.0
				0.100	40.9	3.3	3.8
				T 0.100	47.2	3.8	

m_1 = 1253.40 TRUE



Elaborated / Intocmit
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tehn. Ionut Florin Cartis

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LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
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Test Report No. / Raport de Incercare Nr. 1519 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 404-407 stg,dr,ax** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 404-407 stg, dr, ax**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0 %**

-obtained/ realizat 4.12 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**								
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**3.0**	**5.8**	**15.4**	**21.5**	**48.7**	**64.1**	**85.4**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2196
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	12.84
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	2.78
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	7.08

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
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AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 404-407 stg,dr,ax

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: AB 2

Strewn place/ Locul asternerii:

Sampling date/ Data prelevarii: 23.11. 2018

Road layer/ Strat rutier: strat de baza

Sampling place/ Locul prelevarii: DN76 Varfurile - Stei Pichet 404-407 stg, dr, ax

Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

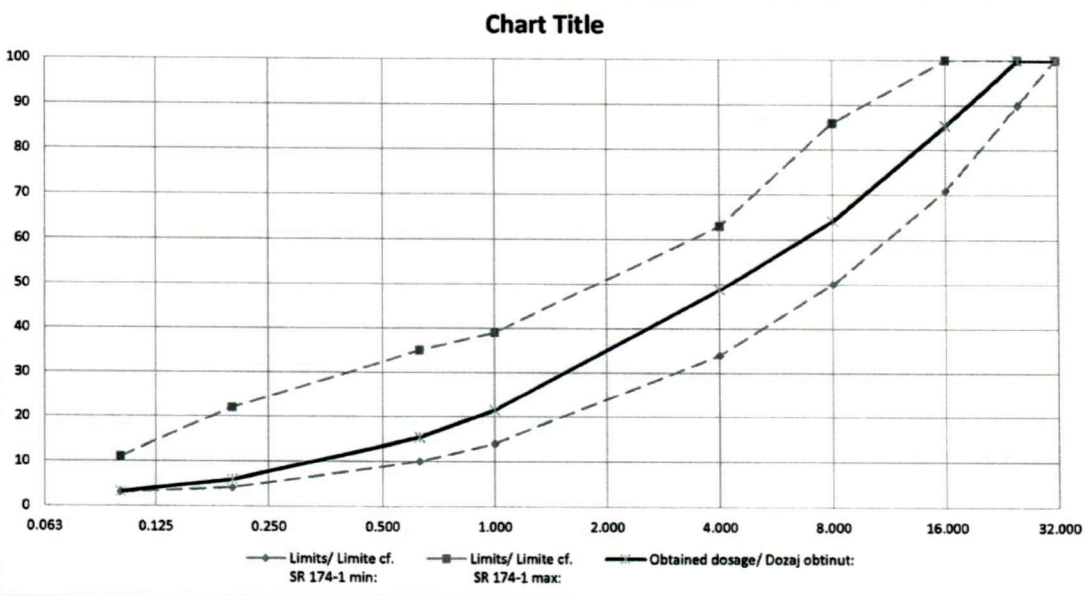
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	Formulas/ Formule	Test results/ Valori obtinute	Grading after ignition/ Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	Retained/ Rest [g]	Retained/ Rest [%]	Passing through/ Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.8		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4444.4		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1369.6	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4373.0	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1298.2	16	190.0	14.6	85.4
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	275.5	21.2	64.1
Bitumen percent/ Procent de bitum **(B)**	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.1	4	200.2	15.4	48.7
				1	353.3	27.2	21.5
				0.630	79.8	6.2	15.4
				0.200	123.6	9.5	5.8
				0.100	36.5	2.8	3.0
				T 0.100	39.3	3.0	

m_1 = 1298.20 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

Acest document poate fi reprodus numai cu acordul scris al emitentului

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** *LABORATOR* ***Adress/** Adresa DN 7 Arad - Deva, **Vladimirescu KM 2, FN, Arad***	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1518 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 182-185-196 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 182-185-196 stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.4.0 - max 5.0 %**

-obtained/ realizat 4.04 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/ Treceri %**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**2.8**	**4.3**	**7.4**	**14.4**	**18.1**	**26.1**	**37.7**	**61.5**	**89.5**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (ρ)	SR EN 12697 - 6	kg. / m^3	min. 2250	2227
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	13.96
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	1.75
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	7.98
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	7.13

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order).
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ *LABORATOR* *Adress/ Adresa DN 7 Arad - Deva,* *Vladimirescu KM 2, FN, Arad*	Authorization no. /Autorizatie nr: 3299/10.10.2017

DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 182-185-196 stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de legatura** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 182-185-196 stg.**

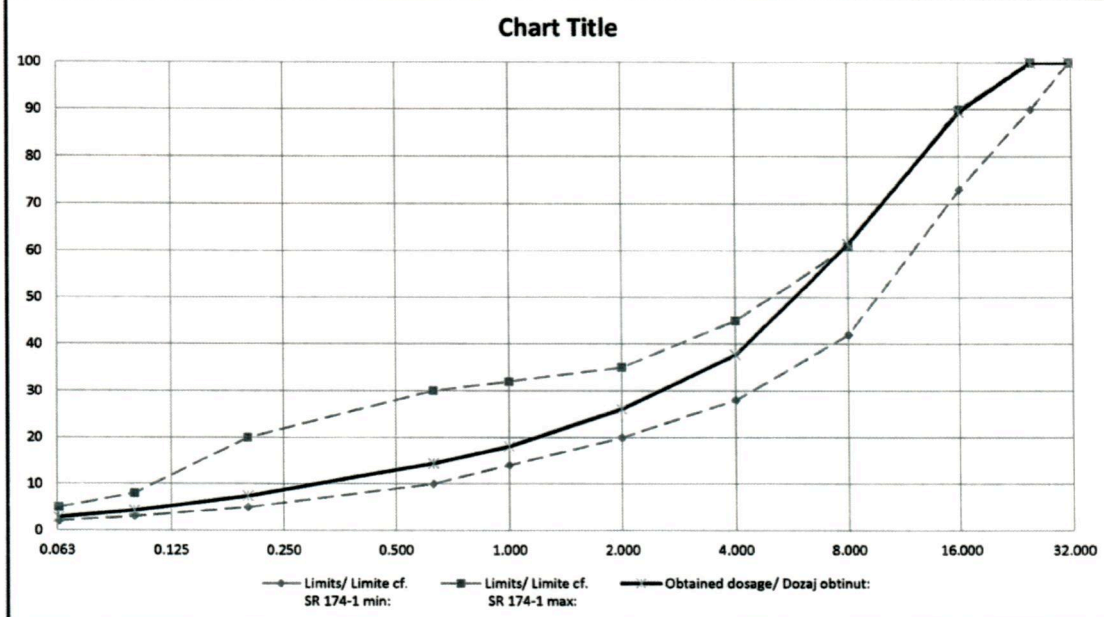
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3128.6	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4374.2	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1245.6	16.0	125.0	10.5	89.5
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+s}	4315.4	8	332.0	28.0	61.5
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1186.8	4	282.6	23.8	37.7
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	137.3	11.6	26.1
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.0	1	95.4	8.0	18.1
				0.630	44.1	3.7	14.4
				0.200	82.3	6.9	7.4
				0.100	37.4	3.2	4.3
				0.063	17.8	1.5	2.8
				T 0.063	32.9	2.8	

m_t = 1186.80 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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SC PORR CONSTRUCT SRL
Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501

LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 1517 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 114 dr.**
Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25**
Strewn place/ Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 114 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.4.0 - max 5.0 %**

-obtained/ realizat 4.19 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	Passings/ Treceri %										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**3.4**	**4.6**	**7.3**	**17.6**	**22.0**	**28.1**	**34.4**	**54.8**	**86.6**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	Type of testing/ Metoda de incercare	U.M.	Requirements/ Prevederi SR 174	Test results/ Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2250	2302
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	10.65
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	1.31
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	8.13
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	4.85

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of eny influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order).
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE 3299/10.10.2017

Code/Cod: F-D-16

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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 114 dr

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25**

Sampling date/ Data prelevarii: **23.11. 2018**

Strewn place/ Locul asternerii:

Road layer/ Strat rutier: **strat de legatura**

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 114 dr.**

Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

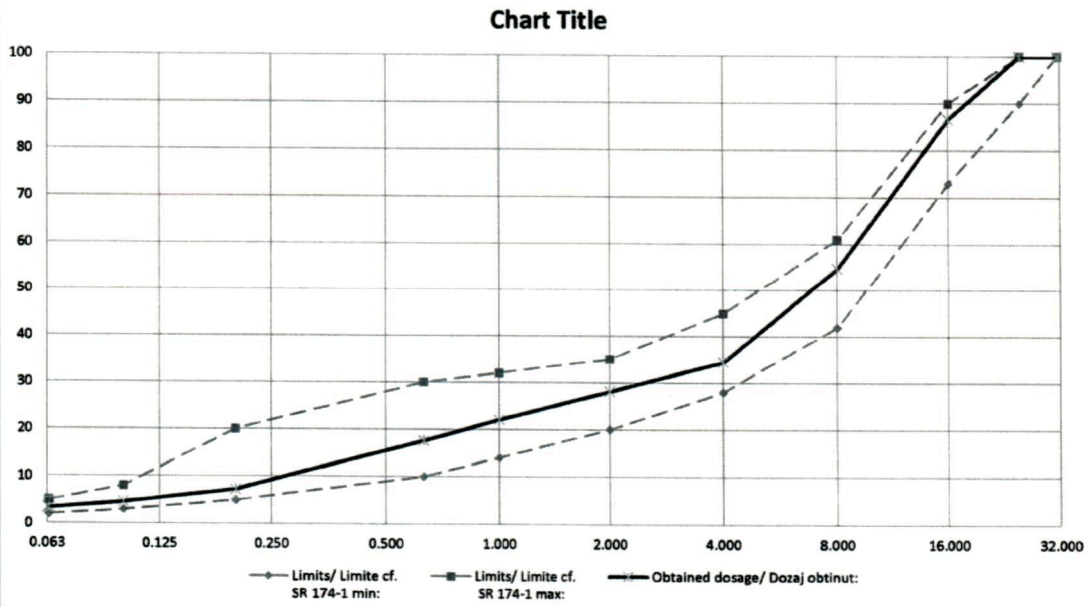
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.6	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4463.5	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1388.9	16.0	176.5	13.4	86.6
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4395.9	8	421.1	31.9	54.8
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1321.3	4	269.6	20.4	34.4
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	82.2	6.2	28.1
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.2	1	80.7	6.1	22.0
				0.630	59.1	4.5	17.6
				0.200	136.2	10.3	7.3
				0.100	34.5	2.6	4.6
				0.063	16.7	1.3	3.4
				T 0.063	44.7	3.4	

m_1 = 1321.30 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
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Code/Cod: F-D-16

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Test Report No. / Raport de Incercare Nr. 1516 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 64 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 64 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18** - **03-12-18**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.4.0 - max 5.0 %**

-obtained/ realizat 4.19 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**1.3**	**2.7**	**5.0**	**10.6**	**13.8**	**20.5**	**32.5**	**53.4**	**84.3**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2250	2220
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	12.57
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	1.49
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	8.44
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	6.04

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

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AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 64 dr

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: BAD 25

Sampling date/ Data prelevarii: 23.11. 2018

Strewn place/ Locul asternerii:

Road layer/ Strat rutier: strat de legatura

Sampling place/ Locul prelevarii: DN76 Varfurile - Stei Pichet 64 dr.

Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

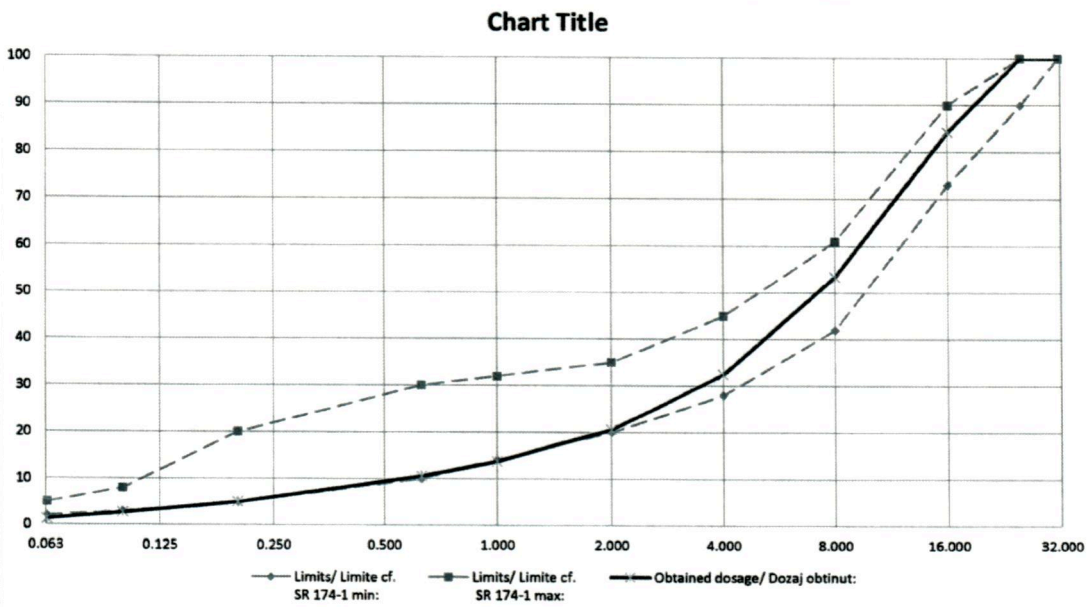
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3129.0	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4447.9	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1318.9	16.0	197.7	15.8	84.3
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4383.7	8	386.8	30.8	53.4
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1254.7	4	262.7	20.9	32.5
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	149.8	11.9	20.5
Bitumen percent/ Procent de bitum **(B)**	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.2	1	85.2	6.8	13.8
				0.630	39.6	3.2	10.6
				0.200	69.9	5.6	5.0
				0.100	29.4	2.3	2.7
				0.063	17.6	1.4	1.3
				T 0.063	16.0	1.3	

m_t = 1254.70 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCĂRCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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SC PORR CONSTRUCT SRL
Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501

LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 1515 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 29-32-34 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 29-32-34 stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18 - 03-12-18**

Mix design No./ Reteta nr: -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.4.0 - max 5.0 %**

-obtained/ realizat 4.19 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**1.0**	**3.6**	**6.9**	**13.5**	**17.5**	**27.2**	**42.2**	**66.7**	**93.1**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2250	2205
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	11.74
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	2.25
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	5.22
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	7.79

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order)
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
Acest raport de Incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

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SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ *LABORATOR* *Adress/ Adresa DN 7 Arad - Deva,* *Vladimirescu KM 2, FN, Arad*	Authorization no. /Autorizatie nr: 3299/10.10.2017

DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 29-32-34 stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de legatura** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 29-32-34 stg.**

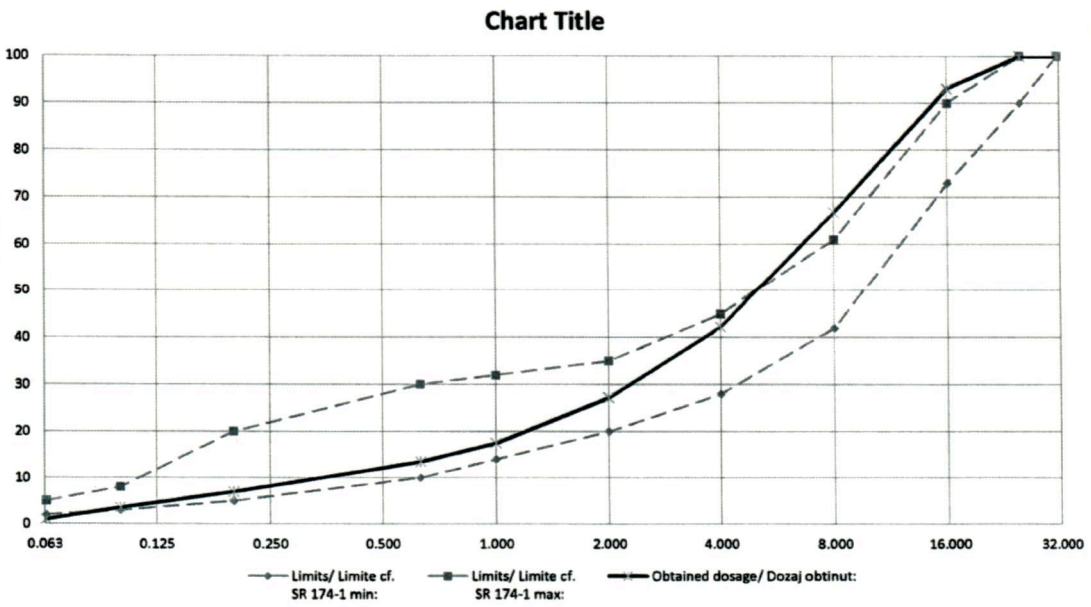
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	**Retained/** Rest [g]	**Retained/** Rest [%]	**Passing through/** Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3075.3	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4351.5	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1276.2	16.0	84.3	6.9	93.1
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4289.3	8	319.6	26.3	66.7
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1214.0	4	297.5	24.5	42.2
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	182.0	15.0	27.2
Bitumen percent/ Procent de bitum **(B)**	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.2	1	118.7	9.8	17.5
				0.630	48.1	4.0	13.5
				0.200	79.5	6.6	6.9
				0.100	40.9	3.4	3.6
				0.063	31.2	2.6	1.0
				T 0.063	12.2	1.0	

m_1 = 1214.00 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
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AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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Test Report No. / Raport de Incercare Nr. 1514 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 952 - 957 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **AB 2** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de baza**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 952 - 957 dr.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18** - **03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.3.4 - max 5.0 %**

-obtained/ realizat 4.14 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**							
Sieve/ Sita(ciur) mm	0.100	0.200	0.630	1	4	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**3.6**	**6.7**	**17.0**	**23.4**	**48.3**	**65.7**	**86.2**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	3	4	10	14	34	50	71	90	100
Limits/ Limite cf. SR 174-1 max:	11	22	35	39	63	86	100	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2200	2297
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.5	14.17
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 3.5	2.36
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	2 - 8	5.11

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order).
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page).

Verified / Verificat
ing. Adrian CRISAN-PANTEA

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SC PORR CONSTRUCT SRL
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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : 0 Pichet 952 - 957 dr. **Customer/ Beneficiar:** SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: AB 2 **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: 23.11. 2018

Road layer/ Strat rutier: strat de baza

Sampling place/ Locul prelevarii: DN76 Varfurile - Stei Pichet 952 - 957 dr.

Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

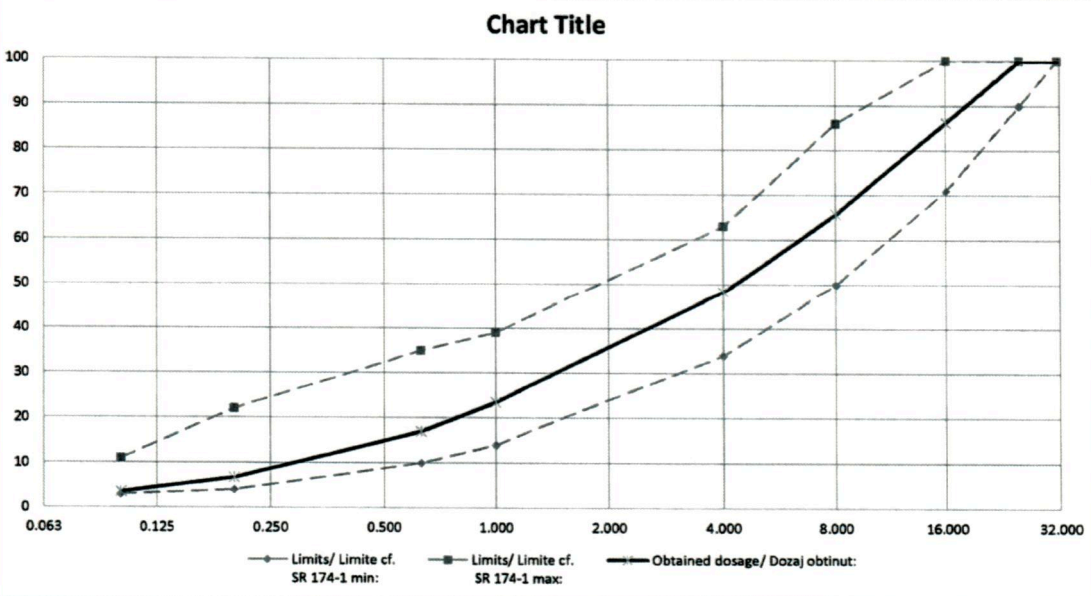
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	UM	Formulas/ Formule	Test results/ Valori obtinute	Grading after ignition/ Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita [mm]	Retained/ Rest [g]	Retained/ Rest [%]	Passing through/ Trecere prin [%]
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3129.5		0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4462.8		0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare ($W_{s,w}$)	g	W_{t+s}-W_t	1333.3	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4393.1	25	0.0	0.0	100.0
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare (W_a)	g	W_{t+a}-W_t	1263.6	16	174.1	13.8	86.2
Calibration factor/ Factor de calibrare	%	C_F	1.1	8	259.1	20.5	65.7
Bitumen percent/ Procent de bitum (B)	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.1	4	220.1	17.4	48.3
				1	314.2	24.9	23.4
				0.630	80.9	6.4	17.0
				0.200	130.1	10.3	6.7
				0.100	40.3	3.2	3.6
				T 0.100	44.8	3.6	

m_t = 1263.60 TRUE



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tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** *LABORATOR* ***Adress/*** *Adresa DN 7 Arad - Deva,* ***Vladimirescu KM 2, FN, Arad***	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1513 / 03-12-18

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 1082 - 1109 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **23.11. 2018**
Road layer/ Strat rutier: **strat de legatura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1082 - 1109 stg.**
Receive date / Data intrarii in laborator: **23.11. 2018**
Test date / Data incercarii: **23-11-18** - **03-12-18**

Mix design No./ Reteta nr. **-**

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.4.0 - max 5.0** %

-obtained/ realizat 4.33 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/** Treceri **%**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**2.5**	**3.9**	**7.5**	**21.2**	**28.3**	**40.6**	**54.0**	**68.4**	**92.9**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	2	3	5	10	14	20	28	42	73	90	100
Limits/ Limite cf. SR 174-1 max:	5	8	20	30	32	35	45	61	90	100	100

2.Caracteristici fizico - mecanice mixtura asfaltica:

Characteristic/ Caracteristica	**Type of testing/** Metoda de incercare	**U.M.**	**Requirements/** Prevederi SR 174	**Test results/** Rezultate obtinute
Apparent density/ Densitate aparenta (p)	SR EN 12697 - 6	kg. / m^3	min. 2250	2257
Marshall Stability/ Stabilitate Marshall (S)	SR EN 12697 - 34	kN	min. 5.0	13.59
Flow index/ Indice de curgere - fluaj (I)	SR EN 12697 - 34	mm	min. 1,5 - max. 4.5	2.32
Raport/ Raport S / I	SR EN 12697 - 34	kN / mm	min 1.1 - max. 3.3	5.86
Water absorbtion/ Absorbtia de apa	SR EN 12697 - 8	% vol.	1,5 - 6	5.71

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI IN CONSTRUCȚII GRAD II
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3299/10.10.2017

Code/Cod: F-D-16

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DETERMINARE COMPOZITIE MIXTURA ASFALTICA

Sample/ Indicativ : **0** Pichet 1082 - 1109 stg. **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **BAD 25** **Strewn place/** Locul asternerii:

Sampling date/ Data prelevarii: **23.11. 2018**

Road layer/ Strat rutier: **strat de legatura** Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1082 - 1109 stg.**

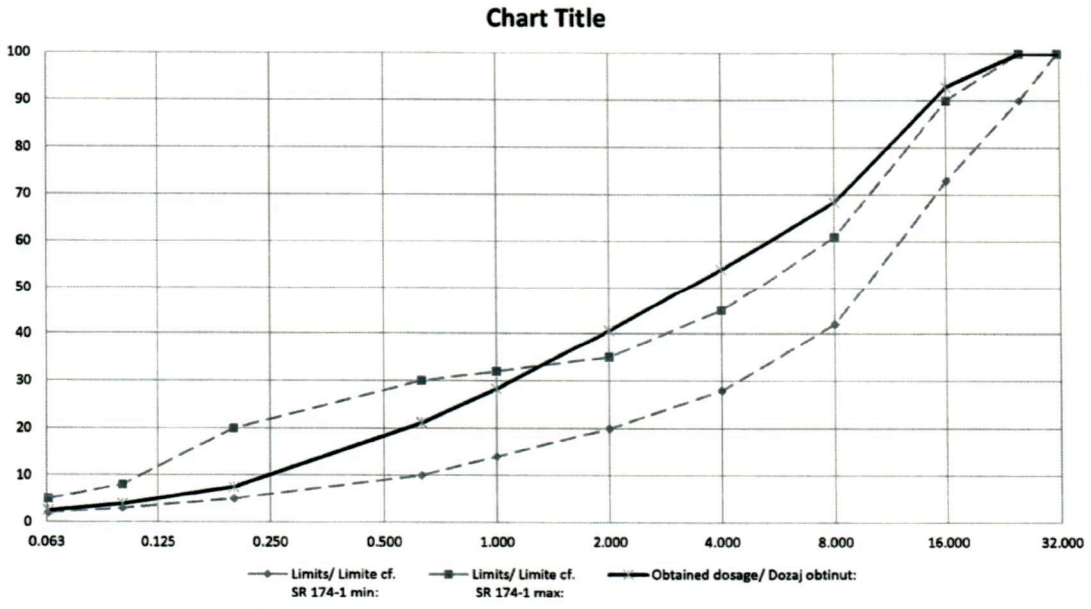
Test made according to/ Determinare efectuata conform **SR EN 12697 - 39, 27, 28, 30, 34**

Apparatus for test: Fournace/ Aparatura utilizata pentru determinare: Cuptor de calcinare

Grading according to/ Granulozitate conform **SR 174**

Characteristics/ Caracteristici	**UM**	**Formulas/** Formule	**Test results/** Valori obtinute	**Grading after ignition/** Granulozitate dupa calcinare			
				Mesh/ Latura ciur/sita **[mm]**	**Retained/** Rest **[g]**	**Retained/** Rest **[%]**	**Passing through/** Trecere prin **[%]**
Basket+collecting vessel weight/ Masa cos+recipient colector	g	W_t	3074.8	31.5	0.0	0.0	100.0
Basket+collecting vessel+mixture vessel weight/ Masa cos+recipient colector+mixtura	g	W_{t+s}	4347.8	25	0.0	0.0	100.0
Mixture total weight before ignition/ Masa totala mixtura inainte de calcinare **($W_{s,w}$)**	g	W_{t+s}-W_t	1273.0	16.0	85.8	7.1	92.9
Basket+collecting vessel+mixture vessel weight after ignition/ Masa cos+recipient colector+mixtura dupa calcinare	g	W_{t+a}	4284.0	8	296.4	24.5	68.4
Residual aggregate total weight after ignition / Masa totala agregat ramas dupa calcinare **(W_a)**	g	W_{t+a}-W_t	1209.2	4	174.1	14.4	54.0
Calibration factor/ Factor de calibrare	%	C_F	0.7	2	161.7	13.4	40.6
Bitumen percent/ Procent de bitum **(B)**	%	$[(W_{s,w}-W_a)/W_{s,w}*100]-C_F$	4.3	1	149.2	12.3	28.3
				0.630	86.2	7.1	21.2
				0.200	165.5	13.7	7.5
				0.100	43.3	3.6	3.9
				0.063	16.9	1.4	2.5
				T 0.063	30.1	2.5	

m_1 = 1209.20 TRUE



Elaborated / Intocmit
tehn. Ionut Florin Cartis

Performed / Efectuat
tehn. Ionut Florin Cartis

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
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3299/10.10.2017

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ANEXA 3

DETERMINARI DE PLANEITATE

PENTRU STRATUL DE UZURA DIN MASF16

4 pag.



PORR	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr. 5-7, Et. 3, Sector 2 Tel: 021/3126500; Fax: 021/3126501	**LABORATORY**/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. **1593** / **05.12.2018**

Masurarea denivelarilor ale straturilor de uzura ale imbracamintilor rutiere :
Incercarea cu dreptarul de 3m in profil longitudinal

Customer/ Beneficiar: *SC GRIGO DESIGN SRL*

Project/ Lucrarea: *DN 76 Varfurile - Stei km 69+350 - 102+660*

Object / Obiect ***Sector PK 901 - 945 km 85,375 - 86,260 - 885 m***

Verificarea s-a realizat pe stratul: *Strat de uzura din mixtura asfaltica MASF16*

Test Date / Data incercarii: **22.11.2018**

Referinte: SR EN 13036-7

POZITIE KM, PICHET, ETC	Strat de uzura				
	Partea stanga		Partea dreapta		Panta
	la 2 m de ax	la 1 m de ax	la 1 m de ax	la 2 m de ax	
	mm	mm	mm	mm	%
km≈86+258	4	2	2	3	-
km≈85+930	6	6	1	1	-
km≈85+602	2	1	3	3	-
km≈85+284	2	2	1	2	-

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)

Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order).

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tehn. Ionut Florin Cartis

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AUTORIZAŢIE 3299/10.10.2017

***Verified/** Verificat:*
ing. Adrian Crisan-Pantea

Code/Cod:F-D-15

PORR	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr. 5-7, Et. 3, Sector 2 Tel: 021/3126500; Fax: 021/3126501	**LABORATORY**/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 1592 / 05.12.2018

Masurarea denivelarilor ale straturilor de uzura ale imbracamintilor rutiere : Incercarea cu dreptarul de 3m in profil longitudinal

Customer/ Beneficiar: *SC GRIGO DESIGN SRL*

Project/ Lucrarea: *DN 76 Varfurile - Stei km 69+350 - 102+660*

Object / Obiect ***Sector PK 1155 - 1271 km 90,520 - 93,094 - 2574 m***

Verificarea s-a realizat pe stratul: *Strat de uzura din mixtura asfaltica MASF16*

Test Date / Data incercarii: **22.11.2018**

Referinte: SR EN 13036-7

POZITIE KM, PICHET, ETC	Strat de uzura				
	Partea stanga		Partea dreapta		Panta
	la 2 m de ax	la 1 m de ax	la 1 m de ax	la 2 m de ax	
	mm	mm	mm	mm	%
km≈93+092	2	1	1	1	-
km≈92+766	1	1	1	1	-
km≈92+438	2	1	1	4	-
km≈92+110	4	1	1	4	-
km≈91+782	2	1	1	2	-
km≈91+454	2	1	1	2	-
km≈91+126	3	1	1	1	-
km≈90+798	1	1	1	2	-
km≈90+530	2	1	1	2	-

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

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Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).

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Test Report No. / Raport de Incercare Nr. **1591** / **05.12.2018**

Masurarea denivelarilor ale straturilor de uzura ale imbracamintilor rutiere : Incercarea cu dreptarul de 3m in profil longitudinal

Customer/ Beneficiar: *CNAIR prin SC GRIGO DESIGN SRL*

Project/ Lucrarea: *DN 76 Varfurile - Stei km 69+350 - 102+660*

Object / Obiect ***Sector PK 1294 - 1420 km 93,500 - 96,614 - 3114 m***

Verificarea s-a realizat pe stratul: *Strat de uzura din mixtura asfaltica MASF16*

Test Date / Data incercarii: **22.11.2018**

Referinte: SR EN 13036-7

POZITIE KM, PICHET, ETC	Strat de uzura				
	Partea stanga		Partea dreapta		Panta
	la 2 m de ax	la 1 m de ax	la 1 m de ax	la 2 m de ax	
	mm	mm	mm	mm	%
km≈96+612	1	1	1	2	-
km≈96+284	2	1	1	2	-
km≈95+956	5	1	1	4	-
km≈95+628	2	2	1	2	-
km≈95+284	4	4	1	2	-
km≈94+956	2	2	1	2	-
km≈94+628	2	1	1	2	-
km≈94+300	1	1	1	1	-
km≈93+972	2	1	1	3	-
km≈93+644	2	2	1	2	-
km≈93+544	1	1	1	1	-

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)

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3299/10.10.2017

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Test Report No. / Raport de Incercare Nr. **1590** / **05.12.2018**

Masurarea denivelarilor ale straturilor de uzura ale imbracamintilor rutiere : Incercarea cu dreptarul de 3m in profil longitudinal

Customer/ Beneficiar: *SC GRIGO DESIGN SRL*

Project/ Lucrarea: *DN 76 Varfurile - Stei km 69+350 - 102+660*

Object / Obiect ***Sector PK 1451 - 1624 km 97,589 - 101,837 - 4248 m***

Verificarea s-a realizat pe stratul: *Strat de uzura din mixtura asfaltica MASF16*

Test Date / Data incercarii: **22.11.2018**

Referinte: SR EN 13036-7

POZITIE KM, PICHET, ETC	Strat de uzura				
	Partea stanga		Partea dreapta		Panta
	la 2 m de ax	la 1 m de ax	la 1 m de ax	la 2 m de ax	
	mm	mm	mm	mm	%
km≈101+817	1	1	1	1	-
km≈101+491	1	2	1	2	-
km≈101+165	1	1	2	5	-
km≈100+839	1	1	2	5	-
km≈100+513	1	1	1	2	-
km≈100+187	5	1	1	5	-
km≈99+861	3	1	1	3	-
km≈99+535	1	1	1	2	-
km≈99+209	2	1	1	3	-
km≈98+883	3	1	1	2	-
km≈98+557	2	1	1	3	-
km≈98+231	2	1	1	2	-
km≈97+905	4	4	1	1	-
km≈97+699	1	1	1	1	-
km≈97+591	1	1	2	4	-

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)

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ANEXA 4

DETERMINARI DE RUGOZITATE SRT

PENTRU STRATUL DE UZURA DIN MASF16

8 pag.



SC PORR CONSTRUCT SRL
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Authorization no. /Autorizatie nr: 3299/10.10.2017

Test report No. / Raport de incercare nr. **1598** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***
Object / Obiect ***DN 76 Varfurile - Stei km 69+350 - 102+660*** **sector PK 901 - 945 km 85,375 - 86,260 - 885 m**
Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
1	**km ≈ 86+258**	MASF16	Stanga; la 1m de acostament	90 90 90 90 90	90,0	5	-4	**86,0**
2	**km ≈ 86+258**	MASF16	Dreapta; la 1m de acostament	90 90 92 92 92	91,2	5	-4	**87,2**
3	**km ≈ 85+930**	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
4	**km ≈ 85+930**	MASF16	Dreapta; la 1m de acostament	98 98 99 99 89	96,6	5	-4	**92,6**
5	**km ≈ 85+602**	MASF16	Stanga; la 1m de acostament	100 100 100 100 100	100,0	5	-4	**96,0**
6	**km ≈ 85+602**	MASF16	Dreapta; la 1m de acostament	95 95 95 96 97	95,6	5	-4	**91,6**
7	**km ≈ 85+294**	MASF16	Stanga; la 1m de acostament	94 94 96 97 97	95,6	5	-4	**91,6**
8	**km ≈ 85+294**	MASF16	Dreapta; la 1m de acostament	99 99 99 100 100	99,4	5	-4	**95,4**

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence)
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
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Test report No. / Raport de incercare nr. **1597** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 90+520 - 93+094*** **sector PK 1155 - 1271 km 90,520 - 93,094 - 2574 m**

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
1	**km ≈ 93+092**	MASF16	Stanga; la 1m de acostament	98 98 99 100 100	99,0	5	-4	**95,0**
2	**km ≈ 93+092**	MASF16	Dreapta; la 1m de acostament	80 80 82 82 82	81,2	5	-4	**77,2**
3	**km ≈ 92+766**	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
4	**km ≈ 92+766**	MASF16	Dreapta; la 1m de acostament	80 80 80 82 82	80,8	5	-4	**76,8**
5	**km ≈ 92+438**	MASF16	Stanga; la 1m de acostament	85 85 87 88 88	86,6	5	-4	**82,6**
6	**km ≈ 92+438**	MASF16	Dreapta; la 1m de acostament	85 85 87 87 87	86,2	5	-4	**82,2**
7	**km ≈ 92+110**	MASF16	Stanga; la 1m de acostament	85 85 86 87 87	86,0	5	-4	**82,0**
8	**km ≈ 92+110**	MASF16	Dreapta; la 1m de acostament	89 89 89 90 90	89,4	5	-4	**85,4**
9	**km ≈ 91+782**	MASF16	Stanga; la 1m de acostament	87 87 88 88 90	88,0	5	-4	**84,0**
10	**km ≈ 91+782**	MASF16	Dreapta; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
11	**km ≈ 91+454**	MASF16	Stanga; la 1m de acostament	110 110 110 112 112	110,8	5	-4	**106,8**
12	**km ≈ 91+454**	MASF16	Dreapta; la 1m de acostament	90 90 90 90 90	90,0	5	-4	**86,0**

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Test report No. / Raport de incercare nr. **1597** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 90+520 - 93+094*** **sector PK 1155 - 1271 km 90,520 - 93,094 - 2574 m**

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
13	**km ≈ 91+126**	MASF16	Stanga; la 1m de acostament	100 100 100 100 102	100,4	5	-4	**96,4**
14	**km ≈ 91+126**	MASF16	Dreapta; la 1m de acostament	90 90 90 90 91	90,2	5	-4	**86,2**
15	**km ≈ 90+798**	MASF16	Stanga; la 1m de acostament	100 100 100 100 100	100,0	5	-4	**96,0**
16	**km ≈ 90+798**	MASF16	Dreapta; la 1m de acostament	95 95 95 96 97	95,6	5	-4	**91,6**
17	**km ≈ 90+530**	MASF16	Stanga; la 1m de acostament	90 90 92 93 93	91,6	5	-4	**87,6**
18	**km ≈ 90+530**	MASF16	Dreapta; la 1m de acostament	94 94 94 95 95	94,4	5	-4	**90,4**

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

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Code/Cod: F-D-19

PORR	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Test report No. / Raport de incercare nr. **1596** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 69+350 - 102+660*** **sector PK 1294 - 1420 km 93,500 - 96,614 - 3114 m**

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
1	**km ≈ 96+612**	MASF16	Stanga; la 1m de acostament	98 98 99 100 100	99,0	5	-4	**95,0**
2	**km ≈ 96+612**	MASF16	Dreapta; la 1m de acostament	80 80 82 82 82	81,2	5	-4	**77,2**
3	**km ≈ 96+284**	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
4	**km ≈ 96+284**	MASF16	Dreapta; la 1m de acostament	80 80 80 82 82	80,8	5	-4	**76,8**
5	**km ≈ 95+956**	MASF16	Stanga; la 1m de acostament	85 85 87 88 88	86,6	5	-4	**82,6**
6	**km ≈ 95+956**	MASF16	Dreapta; la 1m de acostament	85 85 87 87 87	86,2	5	-4	**82,2**
7	**km ≈ 95+628**	MASF16	Stanga; la 1m de acostament	85 85 86 87 87	86,0	5	-4	**82,0**
8	**km ≈ 95+628**	MASF16	Dreapta; la 1m de acostament	89 89 89 90 90	89,4	5	-4	**85,4**
9	**km ≈ 95+284**	MASF16	Stanga; la 1m de acostament	87 87 88 88 90	88,0	5	-4	**84,0**
10	**km ≈ 95+284**	MASF16	Dreapta; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
11	**km ≈ 94+956**	MASF16	Stanga; la 1m de acostament	110 110 110 112 112	110,8	5	-4	**106,8**
12	**km ≈ 94+956**	MASF16	Dreapta; la 1m de acostament	90 90 90 90 90	90,0	5	-4	**86,0**

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Test report No. / Raport de incercare nr. **1596** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 69+350 - 102+660*** **sector PK 1294 - 1420 km 93,500 - 96,614 - 3114 m**

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
13	**km ≈ 94+628**	MASF16	Stanga; la 1m de acostament	100 100 100 100 102	100,4	5	-4	**96,4**
14	**km ≈ 94+628**	MASF16	Dreapta; la 1m de acostament	90 90 90 90 91	90,2	5	-4	**86,2**
15	**km ≈ 94+300**	MASF16	Stanga; la 1m de acostament	100 100 100 100 100	100,0	5	-4	**96,0**
16	**km ≈ 94+300**	MASF16	Dreapta; la 1m de acostament	95 95 95 96 97	95,6	5	-4	**91,6**
17	**km ≈ 93+972**	MASF16	Stanga; la 1m de acostament	90 90 92 93 93	91,6	5	-4	**87,6**
18	**km ≈ 93+972**	MASF16	Dreapta; la 1m de acostament	94 94 94 95 95	94,4	5	-4	**90,4**
19	**km ≈ 93+644**	MASF16	Stanga; la 1m de acostament	88 89 89 90 90	89,2	5	-4	**85,2**
20	**km ≈ 93+644**	MASF16	Dreapta; la 1m de acostament	89 90 90 91 91	90,2	5	-4	**86,2**
21	**km ≈ 93+544**	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
22	**km ≈ 93+544**	MASF16	Dreapta; la 1m de acostament	86 86 87 88 88	87,0	5	-4	**83,0**

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence)

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Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)

Acest raport de incercare cuprinde 2 pagini (This official report of testing has 2 pages).

Elaborated/*Intocmit:* tehn.Ionut Florin CARTIS

Performed / Efectuat tehn.Ionut Florin CARTIS

Verified/*Verificat:* ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-19

SC PORR CONSTRUCT SRL
Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501

LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test report No. / Raport de incercare nr. **1595** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 69+350 - 102+660*** sector PK 1451 - 1624 km 97,589 - 101,837 - 4248 m

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (^{0}C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
1	**km ≈ 98+557**	MASF16	Stanga; la 1m de acostament	89 89 90 90 90	89,6	5	-4	**85,6**
2	**km ≈ 98+557**	MASF16	Dreapta; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
3	**km ≈ 98+231**	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**
4	**km ≈ 98+231**	MASF16	Dreapta; la 1m de acostament	88 88 89 89 89	88,6	5	-4	**84,6**
5	**km ≈ 97+905**	MASF16	Stanga; la 1m de acostament	86 86 87 88 88	87,0	5	-4	**83,0**
6	**km ≈ 97+905**	MASF16	Dreapta; la 1m de acostament	85 85 85 85 87	85,4	5	-4	**81,4**
7	**km ≈ 97+699**	MASF16	Stanga; la 1m de acostament	84 84 86 87 87	85,6	5	-4	**81,6**
8	**km ≈ 97+699**	MASF16	Dreapta; la 1m de acostament	89 89 89 90 90	89,4	5	-4	**85,4**
9	**km ≈ 97+591**	MASF16	Stanga; la 1m de acostament	87 87 88 88 90	88,0	5	-4	**84,0**
10	**km ≈ 97+591**	MASF16	Dreapta; la 1m de acostament	90 90 90 92 92	90,8	5	-4	**86,8**

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
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LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II SC PORR CONSTRUCT SRL AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-19

PORR	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Test report No. / Raport de incercare nr. **1594** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: *SC GRIGO DESIGN SRL*
Object / Obiect *DN 76 Varfurile - Stei km 69+350 - 102+660* sector PK 1451 - 1624 km 97,589 - 101,837 - 4248 m
Sampling date/ Data prelevarii: 22.11.2018

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (°C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
1	km ≈ 101+817	MASF16	Stanga; la 1m de acostament	83 83 85 85 85	84,2	5	-4	80,2
2	km ≈ 101+817	MASF16	Dreapta; la 1m de acostament	70 70 70 72 72	70,8	5	-4	66,8
3	km ≈ 101+491	MASF16	Stanga; la 1m de acostament	82 82 84 84 84	83,2	5	-4	79,2
4	km ≈ 101+491	MASF16	Dreapta; la 1m de acostament	84 84 86 86 86	85,2	5	-4	81,2
5	km ≈ 101+165	MASF16	Stanga; la 1m de acostament	88 88 88 90 90	88,8	5	-4	84,8
6	km ≈ 101+165	MASF16	Dreapta; la 1m de acostament	86 86 89 89 89	87,8	5	-4	83,8
7	km ≈ 100+839	MASF16	Stanga; la 1m de acostament	90 90 90 92 92	90,8	5	-4	86,8
8	km ≈ 100+839	MASF16	Dreapta; la 1m de acostament	93 93 94 96 96	94,4	5	-4	90,4
9	km ≈ 100+513	MASF16	Stanga; la 1m de acostament	88 88 89 90 90	89,0	5	-4	85,0
10	km ≈ 100+513	MASF16	Dreapta; la 1m de acostament	90 90 90 90 91	90,2	5	-4	86,2
11	km ≈ 100+187	MASF16	Stanga; la 1m de acostament	88 88 89 89 90	88,8	5	-4	84,8
12	km ≈ 100+187	MASF16	Dreapta; la 1m de acostament	90 90 93 93 93	91,8	5	-4	87,8

LABORATOR DE ANALIZE SI INCERCARI IN CONSTRUCTII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Test report No. / Raport de incercare nr. **1594** **Date**/Data **05.12.2018**

Determinarea rugozitatii stratului de rulare - Incercarea cu pendul - Metoda SRT

Customer/ Beneficiar: ***SC GRIGO DESIGN SRL***

Object / Obiect ***DN 76 Varfurile - Stei km 69+350 - 102+660*** **sector PK 1451 - 1624 km 97,589 - 101,837 - 4248 m**

Sampling date/ Data prelevarii: **22.11.2018**

Referinte: SR EN13036-4 ; AND 605

Nr. Crt	Locatie / Pozitia kilometrica	Tip imbracaminte asfaltica	Sens / pozitia	Valori ale masuratorilor	Media masuratorilor	Temperatura stratului suport supus incercarii (°C)	Coeficient de corectie citire in functie de temperatura	Valoare SRT Corectata
13	**km ≈ 99+861**	MASF16	Stanga; la 1m de acostament	94 94 95 96 96	95,0	5	-4	**91,0**
14	**km ≈ 99+861**	MASF16	Dreapta; la 1m de acostament	90 90 90 90 91	90,2	5	-4	**86,2**
15	**km ≈ 99+535**	MASF16	Stanga; la 1m de acostament	87 87 88 90 90	88,4	5	-4	**84,4**
16	**km ≈ 99+535**	MASF16	Dreapta; la 1m de acostament	86 86 88 88 89	87,4	5	-4	**83,4**
17	**km ≈ 99+209**	MASF16	Stanga; la 1m de acostament	92 92 94 95 95	93,6	5	-4	**89,6**
18	**km ≈ 99+209**	MASF16	Dreapta; la 1m de acostament	95 95 95 96 96	95,4	5	-4	**91,4**
19	**km ≈ 98+883**	MASF16	Stanga; la 1m de acostament	89 90 90 91 91	90,2	5	-4	**86,2**
20	**km 98+883**	MASF16	Dreapta; la 1m de acostament	87 87 87 90 90	88,2	5	-4	**84,2**

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).

Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).

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Acest raport de incercare cuprinde 2 pagini (This official report of testing has 2 pages)

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Performed / Efectuat tehn.Ionut Florin CARTIS

Verified/*Verificat:* ing. Adrian CRISAN-PANTEA

SC PORR CONSTRUCT SRL AUTORIZATIE 3299/10.10.2017 LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II

Code/Cod: **F-D-19**

ANEXA 5

ANALIZE LABORATOR PAMANTURI

15pag.



PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335** **Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Test report no./ *Raport incercare nr.* **1529 from/**din **03-12-18**

Soil Clasification/ *Clasificare pamant* **cf STAS 1243-88 & 2914 - 84**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling date/ Data recoltarii: 21-10-18

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. -Proba 4

Drilling/ *Foraj*	**Depth of Sample/** *Adancimea de prelevare*	**SOIL TYPE/** *DENUMIRE MATERIA* **L cf. STAS 1243 - 88**	**GRADING/** *GRANULOZITATEA* **cf. STAS 1913/5 - 1985**				**Nonuniformity Coefficient/** *Coeficientul de neuniformitate* **- Un cf. MQ-LAB-O-PTI-46**	**Natural Moisture/** *Umiditate naturala* **- w [%] cf STAS 1913/1 - 82**	**PLASTICITY/** *PLASTICITATEA* **cf STAS 1913/4 - 89**				**Free Swelling/** *Umflarea libera* **[%] cf.MQ-LAB-O-PTI-42 STAS 1913/12 - 88**	**Humus Content/** *Humus* **[%] cf. STAS 7107/1 - 1976**	**Frost Sensitivity/** *Sensibilitatea la inghet* **cf. STAS 1709/2 - 90**	**Soil Classification/** *Simbol material* **cf. STAS 2914 - 84**	**The Quality of Soil for Earthworks/** *Calitate material pentru terasamente* **cf. STAS 2914 - 84**
			% > 2,0 mm	**%** 0,05-2 mm	**%** 0,005-0,05mm	**%** <0,005 mm			**Liquid Limit/** *Limita de curgere* **- Wc [%]**	**Plastic Limit/** *Limita de framantare* **- Wp [%]**	**Plasticity Index/** *Indice de plasticitate* **- Ip**	**Consistency Index/** *Indicele de consistenta* **- Ic**					
- / -	-	**Hard plastic dusty sand gravel/** *Nisip prăfos plastic tare cu pietriş*	12.2	42.4	30.8	14.6	38.6	8.7	27.9	18.3	9.6	2.0	60	0...1%	P3 Foarte Sensibile	4b	**Mediocra**

The test report contains 1 pages, 3 anexes and it was emitted in duplicate without any external influences.
Raportul de incercare contine 1 pagina, 3 anexe si a fost eliberat in 2 exemplare fara influente exterioare.
It is not allowed to multiply the Test Report or to use it for other purposes without the approval of issuer.
Raportul de incercare nu poate fi multiplicat sau utilizat in alte scopuri fara aprobarea emitentului.
The results of the Test Report are referring to the tested sample.
Rezultatele din Raportul de Incercare se refera strict la esantionul supus incercarilor.

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE
3299/10.10.2017

Code/Cod: F-GTF-1

	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. -Proba 4

Drilling no.; Depth/ Foraj nr.; Adancime - / -

Umiditatea naturala si limitele de plasticitate

Conf. MQ-LAB-O-PTI-39, 40 / STAS 1913/4 - 1986 ; STAS 1913-1/1982 ; STAS 1913/2-1976

Determinarea	Natural Moisture/ *Umiditate naturala* - w [%]			Plastic Limit/ *Limita de framantare* w_p [%]			Liquid Limit/ *Limita de curgere* - w_c [%]	
Nr.determinarii	1	2	3	1	2	3	1	2
Lovituri							24	30
Umed+tara(A)	265.50	267.45	200.50	165.60	148.71	62.31	168.98	163.66
Uscat + tara(B)	255.88	258.76	189.30	164.99	147.99	61.45	167.70	162.17
Tara(C)	144.05	163.19	57.73	161.62	144.05	56.78	162.90	156.88
Nr. Capsulă								
A - B	9.62	8.69	11.20	0.61	0.72	0.86	1.28	1.49
B - C	111.83	95.57	131.57	3.37	3.94	4.67	4.80	5.29
w=(A-B)/(B-C)*100	8.60	9.09	8.51	18.10	18.27	18.42	26.37	29.37
w % mediu	8.74			18.26			27.87	

Natural Moisture/ *Umiditate naturala* **- w [%]**		8.74
Plastic Limit/ *Limita de framantare* **-** w_p **[%]**		18.26
Liquid Limit/ *Limita de curgere* **-** w_c **[%]**		27.87
Plasticity index/ *Indice de plasticitate* **-** $I_{p\,[\%]}$:	$I_p = w_c - w_p$	9.60
Consistency index/ *Indice de consistenta* **Ic [%]**:	$I_c = (w_c - w)/I_p$	1.99

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

	Name/Nume:	Signature/Semnatura:
Performed/Efectuat:	**Ionut Florin CARTIS**	
Verified/Verificat:	**Adrian CRISAN-PANTEA**	

SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Determinarea granulozitatii

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660
Sampling date/ Data recoltarii: 21-10-18
Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983
Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. -Proba 4
Drilling no.; Depth/ Foraj nr.; Adancime: - | - | -

1. **Screening Method(Dry material)/** *Metoda cernerii(material uscat)* : **-conform MQ-LAB-O-PTI-38 / STAS 1913/ 5-1985**

Masa material	Dimensiune ochi sită sau ciur [mm]		Cantitatea ramasă		Treceri [%]
			g	% pe ciur	
Totală	sita	ciur			
M [g]		40	0.00	0.00	100.00
50		31.5	0.00	0.00	100.00
		25	0.00	0.00	100.00
		16	0.00	0.00	100.00
		8	0.00	0.00	100.00
		5.6	0.00	0.00	100.00
		4	3.50	7.00	93.00
		2	2.60	5.20	87.80
		1	1.20	2.40	85.40
			42.70		

2. **Screening Method (material spalat)/** *Metoda cernerii (material spălat)*

Weight/ Masa		g fata de m	% fata de M	Treceri [%]
m [g]				
22.50	0.5	2.30	4.60	80.80
	0.25	3.40	6.80	74.00
	0.2	1.80	3.60	70.40
	0.1	4.00	8.00	62.40
	0.063	3.70	7.40	55.00
Trec prin	0.063	27.50		

Passing through/ *Trecere pe* 0,063 = 55.00 %

3. **Sedimentation Method/** *Metoda sedimentării* : Areometrul nr. 2 ΔR_{HMF} = -0.6

Skeleton Density/ *Densitatea scheletului* ρ_s = 2.66 **cf. MQ-LAB-O-PTI-43 / STAS 1913-2/1976**

Time of reading/ Ora citirii	Timpul de sedim. [min.]	Temperatura citită [oC]	Citire areometru R	Citire corectată R'=R+D R	Diametru granulă d [mm]	Corecţia de temp. Ct	R' + Ct	mp
8:53	0.5	17.1	16.8	16.2	0.0602	-0.50	15.7	50.32
	1	17.1	15.6	15.0	0.0553	-0.50	14.5	46.47
	2	17.1	14.6	14.0	0.0396	-0.50	13.5	43.27
	5	17.1	12.2	11.6	0.0257	-0.50	11.1	35.57
	10	17.2	10.8	10.2	0.0185	-0.50	9.7	31.09
	20	17.3	9.4	8.8	0.0133	-0.46	8.3	26.72
	40	17.5	8.2	7.6	0.0094	-0.43	7.2	22.99
	90	17.8	7.0	6.4	0.0063	-0.39	6.0	19.27
	120	17.9	5.8	5.2	0.0056	-0.39	4.8	15.42
13:53	300	19.6	4.6	4.0	0.0035	-0.09	3.9	12.53
8:53	1440	18.8	3.4	2.8	0.0016	-0.22	2.6	8.26

	Name/Nume:	Signature/Semnatura:
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Verified/Verificat:	Adrian CRISAN-PANTEA	

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI IN CONSTRUCŢII GRAD II
sc PORR CONSTRUCT SRL
AUTORIZAŢIE 3299/10.10.2017

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Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

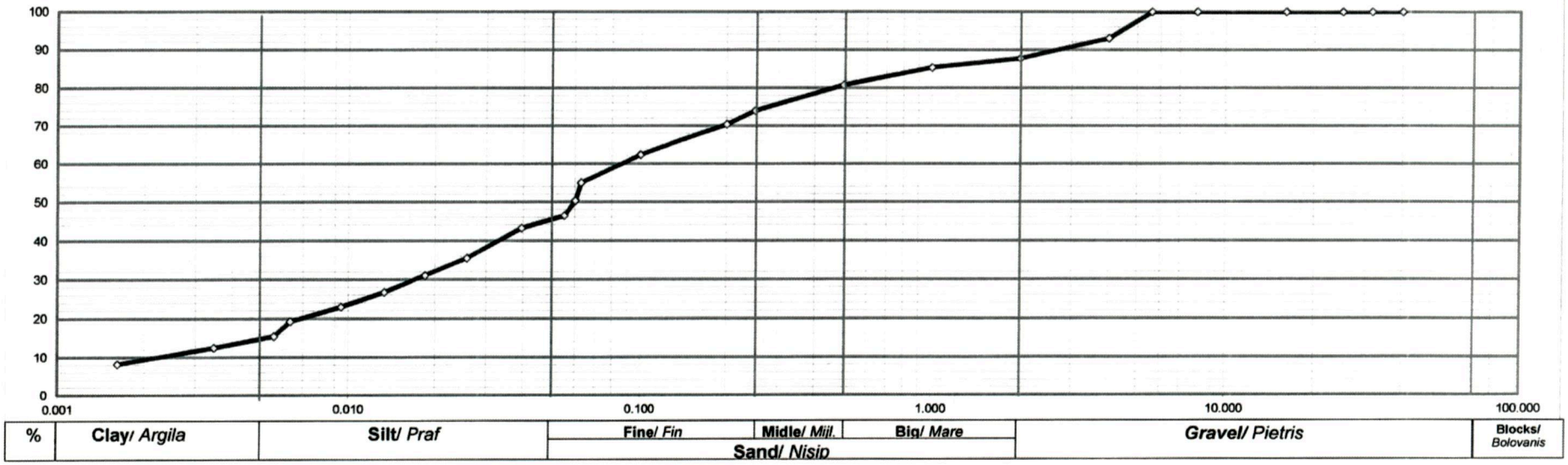
Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. -Proba 4

Drilling no.; Depth/ Foraj nr.; Adancime: - / - -

DIAGRAMA DISTRIBUTIEI GRANULOMETRICE



- Clay/ *Argila*	14.6	%	- Sand/Nisip	42.4	%			
- Silt/ *Praf*	30.8	%	- Fine/ Fin	28.6	%	- Gravel/ Pietris	12.2	%
			- Midle/ Mijlociu	6.8	%	- Blocks/ Bolovanis		
			- Big/ Mare	7.0	%			

SOIL TYPE:/ Hard plastic dusty sand gravel/

Denumire material: Nisip prăfos plastic tare cu pietriș

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII ARAD II SC PORR CONSTRUCT SRL AUTORIZAȚIE 3299/10.10.2017

Code/Cod: Code/Cod: F-GTF-4

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335** **Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: 3299/**10.10.2017**

Test report no./ *Raport incercare nr.* **1528 from/**din **03-12-18**

Soil Clasification/ *Clasificare pamant* **cf STAS 1243-88 & 2914 - 84**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling date/ Data recoltarii: 21-10-18

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 3

Drilling/ *Foraj*	**Depth of Sample/** *Adancimea de prelevare*	**SOIL TYPE/** *DENUMIRE MATERIA* **L cf. STAS 1243 - 88**	**GRADING/** *GRANULOZITATEA* **cf. STAS 1913/5 - 1985**				**Nonuniformity Coefficient/** *Coeficientul de neuniformitate* **- Un cf. MQ-LAB-O-PTI-46**	**Natural Moisture/** *Umiditate naturala* **- w [%] cf STAS 1913/1 - 82**	**PLASTICITY/** *PLASTICITATEA* **cf STAS 1913/4 - 89**				**Free Swelling/** *Umflarea libera* **[%] cf.MQ-LAB-O-PTI-42 STAS 1913/12 - 88**	**Humus Content/** *Humus* **[%] cf. STAS 7107/1 - 1976**	**Frost Sensitivity/** *Sensibilitatea la inghet* **cf. STAS 1709/2 - 90**	**Soil Classification/** *Simbol material* **cf. STAS 2914 - 84**	**The Quality of Soil for Earthworks/** *Calitate material pentru terasamente* **cf. STAS 2914 - 84**
			% > 2,0 mm	% 0,05-2 mm	% 0,005-0,05mm	% <0,005 mm			**Liquid Limit/** *Limita de curgere* **- Wc [%]**	**Plastic Limit/** *Limita de framantare* **- Wp [%]**	**Plasticity Index/** *Indice de plasticitate* **- Ip**	**Consistency Index/** *Indicele de consistenta* **- Ic**					
- / -	-	**Hard plastic dusty sand gravel/** *Nisip prăfos plastic tare cu pietriş*	11.0	41.2	34.5	13.3	41.5	12.7	29.7	19.7	9.9	1.7	65	0...1%	P3 Foarte Sensibile	**4b**	**Mediocra**

The test report contains 1 pages, 3 anexes and it was emitted in duplicate without any external influences.
Raportul de incercare contine 1 pagina, 3 anexe si a fost eliberat in 2 exemplare fara influente exterioare.
It is not allowed to multiply the Test Report or to use it for other purposes without the approval of issuer.
Raportul de incercare nu poate fi multiplicat sau utilizat in alte scopuri fara aprobarea emitentului.
The results of the Test Report are referring to the tested sample.
Rezultatele din Raportul de Incercare se refera strict la esantionul supus incercarilor.

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE 3299/10.10.2017

Code/Cod: F-GTF-1

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 3

Drilling no.; Depth/ Foraj nr.; Adancime - / -

Umiditatea naturala si limitele de plasticitate

Conf. MQ-LAB-O-PTI-39, 40 / STAS 1913/4 - 1986 ; STAS 1913-1/1982 ; STAS 1913/2-1976

Determinarea	**Natural Moisture/** *Umiditate naturala* - **w [%]**			**Plastic Limit/** *Limita de framantare* **w_p [%]**			**Liquid Limit/** *Limita de curgere* - **w_c [%]**	
Nr.determinarii	1	2	3	1	2	3	1	2
Lovituri							21	28
Umed+tara(A)	246.17	267.61	247.22	149.71	160.62	164.18	152.21	163.79
Uscat + tara(B)	237.12	255.00	235.78	149.20	160.01	163.60	150.35	162.10
Tara(C)	163.17	163.22	142.35	146.62	156.89	160.68	144.07	156.47
Nr. Capsulă								
A - B	9.05	12.61	11.44	0.51	0.61	0.58	1.86	1.69
B - C	73.95	91.78	93.43	2.58	3.12	2.92	6.28	5.63
w=(A-B)/(B-C)*100	12.24	13.74	12.24	19.77	19.55	19.86	28.52	30.82
w % mediu	12.74			19.73			29.67	

Natural Moisture/ *Umiditate naturala* - **w [%]**		12.74
Plastic Limit/ *Limita de framantare* - **w_p [%]**		19.73
Liquid Limit/ *Limita de curgere* - **w_c [%]**		29.67
Plasticity index/ *Indice de plasticitate* - **$I_{p\,[\%]}$**:	$I_p = w_c - w_p$	9.94
Consistency index/ *Indice de consistenta* **Ic [%]**:	$I_c = (w_c - w)/I_p$	1.70

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

	Name/Nume:	**Signature/Semnatura:**
Performed/Efectuat:	**Ionut Florin CARTIS**	
Verified/Verificat:	**Adrian CRISAN-PANTEA**	

Code/Cod: F-GTF-2

PORR	SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Determinarea granulozitatii

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660
Sampling date/ Data recoltarii: 21-10-18
Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983
Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 3
Drilling no.; Depth/ Foraj nr.; Adancime: - - -

1. **Screening Method(Dry material)**/ *Metoda cernerii(material uscat)* : **-conform MQ-LAB-O-PTI-38 / STAS 1913/ 5-1985**

Masa material	Dimensiune ochi sită sau ciur [mm]		Cantitatea ramasă		Treceri [%]
			g	% pe ciur	
Totală	sita	ciur			
M [g]		40	0.00	0.00	100.00
50		31.5	0.00	0.00	100.00
		25	0.00	0.00	100.00
		16	0.00	0.00	100.00
		8	0.00	0.00	100.00
		5.6	0.00	0.00	100.00
		4	2.50	5.00	95.00
		2	3.00	6.00	89.00
		1	2.90	5.80	83.20
			41.60		

2. **Screening Method (material spalat)**/ *Metoda cernerii (material spălat)*

Weight/ Masa		g fata de m	% fata de M	Treceri [%]
m [g]				
21.70	0.5	2.80	5.60	77.60
	0.25	2.60	5.20	72.40
	0.2	3.40	6.80	65.60
	0.1	1.80	3.60	62.00
	0.063	2.70	5.40	56.60
Trec prin	0.063	28.30		

Passing through/ *Trecere pe* 0,063 = 56.60 %

3. **Sedimentation Method/** *Metoda sedimentării* : Areometrul nr. 2 ΔR_{HMF} = -0.6

Skeleton Density/ *Densitatea scheletului* ρ_s = 2.66 **cf. MQ-LAB-O-PTI-43 / STAS 1913-2/1976**

Time of reading/ Ora citirii	Timpul de sedim. [min.]	Temperatura citită [oC]	Citire areometru R	Citire corectată R'=R+D R	Diametru granulă d [mm]	Corecţia de temp. Ct	R' + Ct	mp
8:53	0.5	17.1	17.8	17.2	0.0594	-0.50	16.7	53.52
	1	17.1	16.4	15.8	0.0549	-0.50	15.3	49.03
	2	17.1	15.2	14.6	0.0393	-0.50	14.1	45.19
	5	17.1	13.6	13.0	0.0253	-0.50	12.5	40.06
	10	17.2	12.0	11.4	0.0182	-0.50	10.9	34.93
	20	17.3	10.8	10.2	0.0130	-0.46	9.7	31.21
	40	17.5	8.4	7.8	0.0094	-0.43	7.4	23.64
	90	17.8	6.8	6.2	0.0064	-0.39	5.8	18.63
	120	17.9	5.4	4.8	0.0056	-0.39	4.4	14.14
13:53	300	19.6	4.2	3.6	0.0035	-0.09	3.5	11.25
8:53	1440	18.8	3.6	3.0	0.0016	-0.22	2.8	8.90

Name/Nume:
Performed/Efectuat: Ionut Florin CARTIS
Verified/Verificat: Adrian CRISAN-PANTEA

Signature/Semnatura:

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II SC PORR CONSTRUCT SRL AUTORIZAŢIE 3299/10.10.2017

Code/Cod: F-GTF-3

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

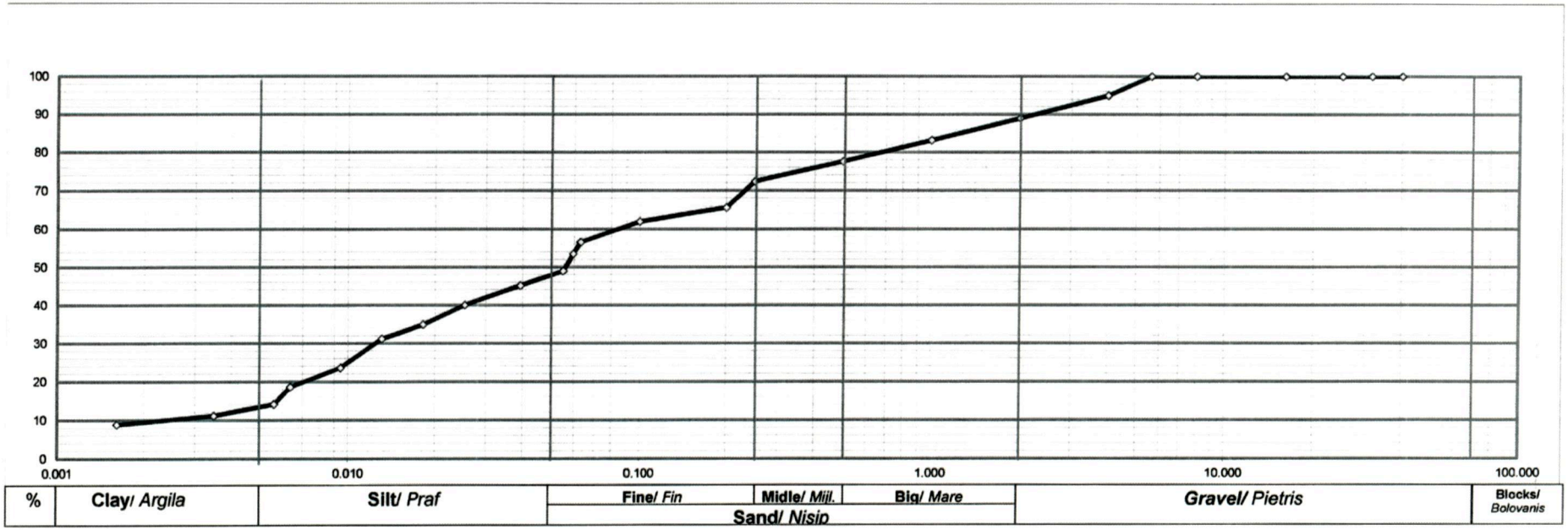
Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 3

Drilling no.; Depth/ Foraj nr.; Adancime: - / - -

DIAGRAMA DISTRIBUTIEI GRANULOMETRICE



- **Clay/** *Argila*	**13.3**	**%**	- **Sand/**Nisip	**41.2**	**%**			
- **Silt/** *Praf*	**34.5**	**%**	- **Fine/** Fin	**24.6**	**%**	- **Gravel/** Pietris	**11.0**	**%**
			- **Midle/** Mijlociu	**5.2**	**%**	- **Blocks/** Bolovanis		
			- **Big/** Mare	**11.4**	**%**			

SOIL TYPE:/ Hard plastic dusty sand gravel/

Denumire material: Nisip prăfos plastic tare cu pietriş

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II SC PORR CONSTRUCT SRL AUTORIZAŢIE 3299/10.10.2017

Code/Cod: Code/Cod: F-GTF-4

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335** **Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: 3299/**10.10.2017**

Test report no./ *Raport incercare nr.* **1527 from/**din **03-12-18**

Soil Clasification/ *Clasificare pamant* **cf STAS 1243-88 & 2914 - 84**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling date/ Data recoltarii: 21-10-18

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 2

Drilling/ *Foraj*	**Depth of Sample/** *Adancimea de prelevare*	**SOIL TYPE/** *DENUMIRE MATERIA* **L cf. STAS 1243 - 88**	**GRADING/** *GRANULOZITATEA* **cf. STAS 1913/5 - 1985**				**Nonuniformity Coefficient/** *Coeficientul de neuniformitate* **- Un cf. MQ-LAB-O-PTI-46**	**Natural Moisture/** *Umiditate naturala* **- w [%] cf STAS 1913/1 - 82**	**PLASTICITY/** *PLASTICITATEA* **cf STAS 1913/4 - 89**				**Free Swelling/** *Umflarea libera* **[%] cf.MQ-LAB-O-PTI-42 STAS 1913/12 - 88**	**Humus Content/** *Humus* **[%] cf. STAS 7107/1 - 1976**	**Frost Sensitivity/** *Sensibilitatea la inghet* **cf. STAS 1709/2 - 90**	**Soil Classification/** *Simbol material* **cf. STAS 2914 - 84**	**The Quality of Soil for Earthworks/** *Calitate material pentru terasamente* **cf. STAS 2914 - 84**
			% > 2,0 mm	% 0,05-2 mm	% 0,005-0,05mm	% <0,005 mm			**Liquid Limit/** *Limita de curgere* **- Wc [%]**	**Plastic Limit/** *Limita de framantare* **- Wp [%]**	**Plasticity Index/** *Indice de plasticitate* **- Ip**	**Consistency Index/** *Indicele de consistenta* **- Ic**					
- / -	-	**Hard plastic dusty sand with rare gravel/** *Nisip argilos plastic tare cu rar pietriş*	9.6	37.0	36.4	17.0	-	11.1	31.2	16.9	14.3	1.4	65	0...1%	P3 Foarte Sensibile	4b	Mediocra

The test report contains 1 pages, 3 anexes and it was emitted in duplicate without any external influences.
Raportul de incercare contine 1 pagina, 3 anexe si a fost eliberat in 2 exemplare fara influente exterioare.
It is not allowed to multiply the Test Report or to use it for other purposes without the approval of issuer.
Raportul de incercare nu poate fi multiplicat sau utilizat in alte scopuri fara aprobarea emitentului.
The results of the Test Report are referring to the tested sample.
Rezultatele din Raportul de incercare se refera strict la esantionul supus incercarilor.

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE
3299/10.10.2017

Code/Cod: F-GTF-1

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no.** **/**Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 2

Drilling no.; Depth/ Foraj nr.; Adancime - / -

Umiditatea naturala si limitele de plasticitate

Conf. MQ-LAB-O-PTI-39, 40 / STAS 1913/4 - 1986 ; STAS 1913-1/1982 ; STAS 1913/2-1976

Determinarea	**Natural Moisture/** *Umiditate naturala* - **w [%]**			**Plastic Limit/** *Limita de framantare* **w_p [%]**			**Liquid Limit/** *Limita de curgere* - **w_c [%]**	
Nr.determinarii	1	2	3	1	2	3	1	2
Lovituri							24	29
Umed+tara(A)	466.47	458.75	463.41	165.55	160.21	163.96	171.60	151.24
Uscat + tara(B)	424.31	421.54	420.88	165.18	159.68	163.67	169.67	149.08
Tara(C)	53.69	54.26	55.92	163.13	156.86	161.58	163.18	142.32
Nr. Capsulă								
A - B	42.16	37.21	42.53	0.37	0.53	0.29	1.93	2.16
B - C	370.62	367.28	364.96	2.05	2.82	2.09	6.49	6.76
w=(A-B)/(B-C)*100	11.38	10.13	11.65	18.05	18.79	13.88	29.44	32.95
w % mediu	11.05			16.91			31.20	

Natural Moisture/ *Umiditate naturala* - **w [%]**		11.05
Plastic Limit/ *Limita de framantare* - **w_p [%]**		16.91
Liquid Limit/ *Limita de curgere* - **w_c [%]**		31.20
Plasticity index/ *Indice de plasticitate* - **$I_{p\,[\%]}$**:	$I_p = w_c - w_p$	14.29
Consistency index/ *Indice de consistenta* **Ic [%]**:	$I_c = (w_c - w)/I_p$	1.41

Performed/Efectuat: **Name/Nume:** **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

Signature/Semnatura:

Code/Cod: F-GTF-2

SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ LABORATOR Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad	Authorization no. /Autorizatie nr: 3299/10.10.2017

Determinarea granulozitatii

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660
Sampling date/ Data recoltarii: 21-10-18
Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983
Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 2
Drilling no.; Depth/ Foraj nr.; Adancime: - - -

1. **Screening Method(Dry material)/** *Metoda cernerii(material uscat)* : **-conform MQ-LAB-O-PTI-38 / STAS 1913/ 5-1985**

Masa material	Dimensiune ochi sită sau ciur [mm]		Cantitatea ramasă		Treceri [%]
			g	% pe ciur	
Totală	sita	ciur			
M [g]		40	0.00	0.00	100.00
50		31.5	0.00	0.00	100.00
		25	0.00	0.00	100.00
		16	0.00	0.00	100.00
		8	0.00	0.00	100.00
		5.6	0.00	0.00	100.00
		4	2.00	4.00	96.00
		2	2.80	5.60	90.40
		1	3.60	7.20	83.20
			41.60		

2. **Screening Method (material spalat)/** *Metoda cernerii (material spălat)*

Weight/ Masa		g fata de m	% fata de M	Treceri [%]
m [g]				
19.40	0.5	2.60	5.20	78.00
	0.25	3.20	6.40	71.60
	0.2	1.50	3.00	68.60
	0.1	2.00	4.00	64.60
	0.063	1.70	3.40	61.20
Trec prin	0.063	30.60		

Passing through/ *Trecere pe* 0,063 = 61.20 %

3. **Sedimentation Method/** *Metoda sedimentării* : Areometrul nr. 2 ΔR_{HMF} = -0.6

Skeleton Density/ *Densitatea scheletului* ρ_s = 2.66 **cf. MQ-LAB-O-PTI-43 / STAS 1913-2/1976**

Time of reading/ Ora citirii	Timpul de sedim. [min.]	Temperatura citită [oC]	Citire areometru R	Citire corectată R'=R+D R	Diametru granulă d [mm]	Corecţia de temp. Ct	R' + Ct	mp
8:53	0.5	17.0	19.0	18.4	0.0570	-0.50	17.9	57.37
	1	17.0	18.0	17.4	0.0536	-0.50	16.9	54.16
	2	17.0	17.0	16.4	0.0384	-0.50	15.9	50.96
	5	17.0	15.0	14.4	0.0249	-0.50	13.9	44.55
	10	17.0	13.6	13.0	0.0179	-0.50	12.5	40.06
	20	17.2	12.2	11.6	0.0129	-0.50	11.1	35.57
	40	17.4	8.8	8.2	0.0094	-0.46	7.7	24.80
	90	17.7	7.6	7.0	0.0063	-0.43	6.6	21.07
	120	17.8	6.6	6.0	0.0055	-0.39	5.6	17.99
13:53	300	19.2	5.2	4.6	0.0035	-0.18	4.4	14.17
8:53	1440	18.6	4.2	3.6	0.0016	-0.27	3.3	10.69

	Name/Nume:	Signature/Semnatura:
Performed/Efectuat:	Ionut Florin CARTIS	
Verified/Verificat:	Adrian CRISAN-PANTEA	

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE 3299/10.10.2017

Code/Cod: F-GTF-3

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

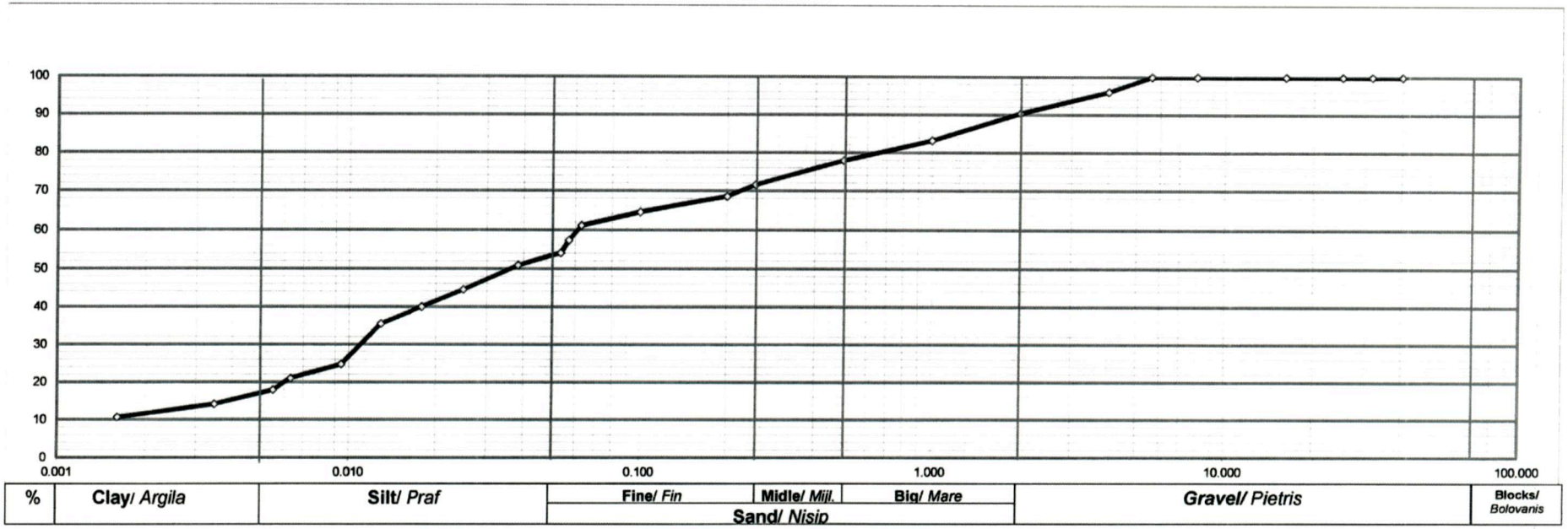
Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 2

Drilling no.; Depth/ Foraj nr.; Adancime - / - -

DIAGRAMA DISTRIBUTIEI GRANULOMETRICE



- Clay/ *Argila*	17.0	%	- Sand/Nisip	37.0	%			
- Silt/ *Praf*	36.4	%	- Fine/ Fin	18.2	%	- Gravel/ Pietris	9.6	%
			- Midle/ Mijlociu	6.4	%	- Blocks/ Bolovanis		
			- Big/ Mare	12.4	%			

SOIL TYPE:/ Hard plastic dusty sand with rare gravel/

Denumire material: Nisip argilos plastic tare cu rar pietriș

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: Code/Cod: F-GTF-4

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: 3299/10.10.2017

Test report no./ *Raport incercare nr.* **1526 from/**din **03-12-18**

Soil Clasification/ *Clasificare pamant* **cf STAS 1243-88 & 2914 - 84**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling date/ Data recoltarii: 21-10-18

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 1

Drilling/ *Foraj*	**Depth of Sample/** *Adancimea de prelevare*	**SOIL TYPE/** *DENUMIRE MATERIA*L **cf. STAS 1243 - 88**	**GRADING/** *GRANULOZITATEA* **cf. STAS 1913/5 - 1985**				**Nonuniformity Coefficient/** *Coeficientul de neuniformitate* **- Un cf. MQ-LAB-O-PTI-46**	**Natural Moisture/** *Umiditate naturala* **- w [%] cf STAS 1913/1 - 82**	**PLASTICITY/** *PLASTICITATEA* **cf STAS 1913/4 - 89**				**Free Swelling/** *Umflarea libera* **[%] cf.MQ-LAB-O-PTI-42 STAS 1913/12 - 88**	**Humus Content/** *Humus* **[%] cf. STAS 7107/1 - 1976**	**Frost Sensitivity/** *Sensibilitatea la inghet* **cf. STAS 1709/2 - 90**	**Soil Classification/** *Simbol material* **cf. STAS 2914 - 84**	**The Quality of Soil for Earthworks/** *Calitate material pentru terasamente* **cf. STAS 2914 - 84**
			% > 2,0 mm	**%** 0,05-2 mm	**%** 0,005-0,05mm	**%** <0,005 mm			**Liquid Limit/** *Limita de curgere* **- Wc [%]**	**Plastic Limit/** *Limita de framantare* **- Wp [%]**	**Plasticity Index/** *Indice de plasticitate* **- Ip**	**Consistency Index/** *Indicele de consistenta* **- Ic**					
- / -	-	**Hard plastic dusty sand with gravel/** *Nisip prăfos plastic tare cu pietriş*	12.4	39.1	34.3	14.3	70.0	7.7	27.4	17.5	9.9	2.0	60	0...1%	P3 Foarte Sensibile	4b	Mediocra

The test report contains 1 pages, 3 anexes and it was emitted in duplicate without any external influences.
Raportul de incercare contine 1 pagina, 3 anexe si a fost eliberat in 2 exemplare fara influente exterioare.
It is not allowed to multiply the Test Report or to use it for other purposes without the approval of issuer.
Raportul de incercare nu poate fi multiplicat sau utilizat in alte scopuri fara aprobarea emitentului.
The results of the Test Report are referring to the tested sample.
Rezultatele din Raportul de Incercare se refera strict la esantionul supus incercarilor.

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE
3299/10.10.2017

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no.** /Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 1

Drilling no.; Depth/ Foraj nr.; Adancime - / -

Umiditatea naturala si limitele de plasticitate

Conf. MQ-LAB-O-PTI-39, 40 / STAS 1913/4 - 1986 ; STAS 1913-1/1982 ; STAS 1913/2-1976

Determinarea	**Natural Moisture/** *Umiditate naturala* - **w [%]**			**Plastic Limit/** *Limita de framantare* **w_p [%]**			**Liquid Limit/** *Limita de curgere* - **w_c [%]**	
Nr.determinarii	1	2	3	1	2	3	1	2
Lovituri							22	28
Umed+tara(A)	321.50	280.70	282.90	43.87	42.69	42.14	51.63	52.39
Uscat + tara(B)	311.20	269.90	274.10	42.83	41.57	40.60	49.22	50.00
Tara(C)	159.60	144.00	162.00	36.91	35.24	31.68	40.35	41.36
Nr. Capsulă								
A - B	10.30	10.80	8.80	1.04	1.12	1.54	2.41	2.39
B - C	151.60	125.90	112.10	5.92	6.33	8.92	8.87	8.64
w=(A-B)/(B-C)*100	6.79	8.58	7.85	17.57	17.69	17.26	26.37	28.46
w % mediu	7.74			17.51			27.42	

Natural Moisture/ *Umiditate naturala* - **w [%]**		7.74
Plastic Limit/ *Limita de framantare* - **w_p [%]**		17.51
Liquid Limit/ *Limita de curgere* - **w_c [%]**		27.42
Plasticity index/ *Indice de plasticitate* - **$I_{p\,[\%]}$**:	$I_p = w_c - w_p$	9.91
Consistency index/ *Indice de consistenta* **Ic [%]**:	$I_c = (w_c - w)/I_p$	1.99

Performed/Efectuat: **Name/Nume:** **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

Signature/Semnatura:

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII SC PORR CONSTRUCT SRL AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-GTF-2

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Determinarea granulozitatii

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660
Sampling date/ Data recoltarii: 21-10-18
Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983
Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 1
Drilling no.; Depth/ Foraj nr.; Adancime: - | - | -

1. **Screening Method(Dry material)/** *Metoda cernerii(material uscat)* : **-conform MQ-LAB-O-PTI-38 / STAS 1913/ 5-1985**

Masa material	Dimensiune ochi sită sau ciur [mm]		Cantitatea ramasă		Treceri [%]
			g	% pe ciur	
Totală	sita	ciur			
M [g]		40	0.00	0.00	100.00
50		31.5	0.00	0.00	100.00
		25	0.00	0.00	100.00
		16	0.00	0.00	100.00
		8	0.00	0.00	100.00
		5.6	0.00	0.00	100.00
		4	2.80	5.60	94.40
		2	3.40	6.80	87.60
		1	3.60	7.20	80.40
			40.20		

2. **Screening Method (material spalat)/** *Metoda cernerii (material spălat)*

Weight/ Masa		g fata de m	% fata de M	Treceri [%]
m [g]				
23.60	0.5	3.20	6.40	74.00
	0.25	3.40	6.80	67.20
	0.2	2.00	4.00	63.20
	0.1	3.00	6.00	57.20
	0.063	2.20	4.40	52.80
Trec prin	0.063	26.40		

Passing through/ *Trecere pe* 0,063 = 52.80 %

3. **Sedimentation Method/** *Metoda sedimentării* : Areometrul nr. 2 ΔR_{HMF} = -0.6

Skeleton Density/ *Densitatea scheletului* ρ_s = 2.66 **cf. MQ-LAB-O-PTI-43 / STAS 1913-2/1976**

Time of reading/ Ora citirii	Timpul de sedim. [min.]	Temperatura citită [oC]	Citire areometru R	Citire corectată R'=R+D R	Diametru granulă d [mm]	Corecţia de temp. Ct	R' + Ct	mp
8:53	0.5	17.0	17.2	16.6	0.0582	-0.50	16.1	51.60
	1	17.0	16.6	16.0	0.0546	-0.50	15.5	49.67
	2	17.0	15.4	14.8	0.0393	-0.50	14.3	45.83
	5	17.0	14.4	13.8	0.0252	-0.50	13.3	42.62
	10	17.0	13.0	12.4	0.0180	-0.50	11.9	38.14
	20	17.2	11.0	10.4	0.0130	-0.50	9.9	31.73
	40	17.4	8.4	7.8	0.0095	-0.46	7.3	23.52
	90	17.7	7.0	6.4	0.0064	-0.43	6.0	19.15
	120	17.8	5.6	5.0	0.0056	-0.39	4.6	14.78
13:53	300	19.2	4.8	4.2	0.0035	-0.18	4.0	12.88
8:53	1440	18.6	3.4	2.8	0.0016	-0.27	2.5	8.12

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

PORR	**SC PORR CONSTRUCT SRL** **Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501**	**LABORATORY/** LABORATOR **Adress/** Adresa **DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad**	**Authorization no. /**Autorizatie nr: **3299/10.10.2017**

Custom/ Beneficiar: SC GRIGO DESIGN SRL

Project/ Lucrarea: Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660

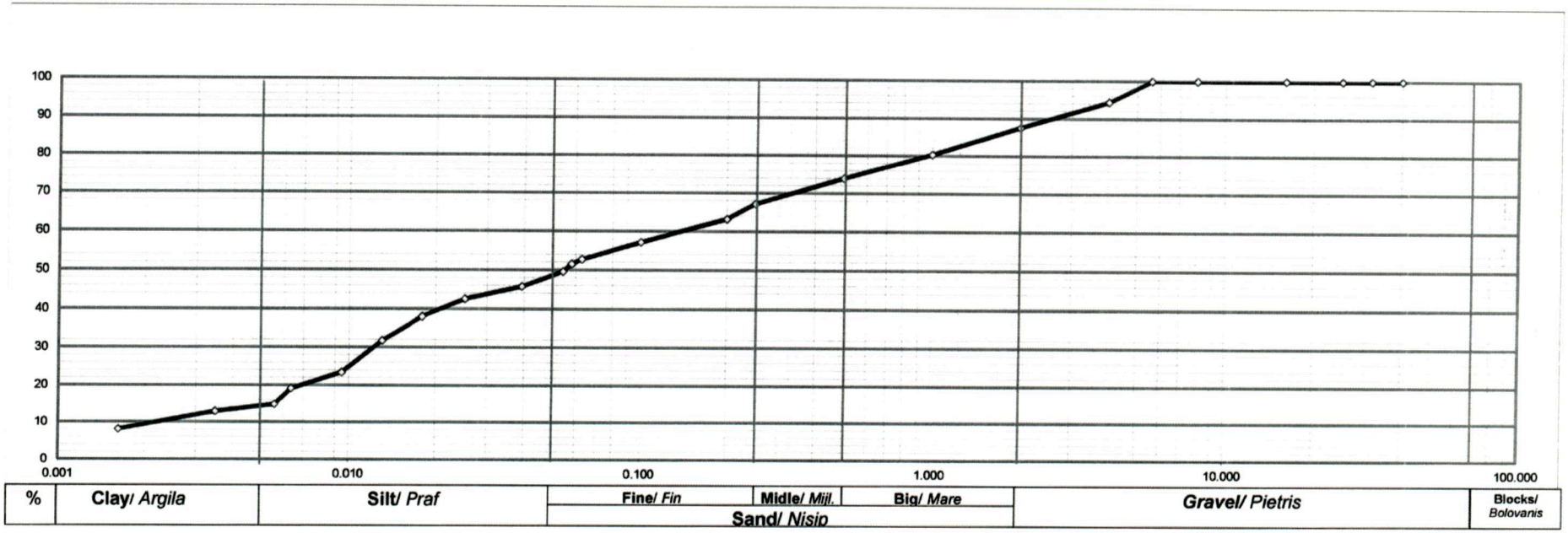
Sampling date/ Data recoltarii: 21-10-18

Sampling procedure / Procedura de prelevare: MQ-LAB-O-PTI-41 / STAS 1242-2/1983

Sampling place/ Locul recoltarii: DN 76 Pichet 945 - 958 dr. - Proba 1

Drilling no.; Depth/ Foraj nr.; Adancime: - / - -

DIAGRAMA DISTRIBUTIEI GRANULOMETRICE



- Clay/ *Argila*	14.3	%	- Sand/Nisip	39.1	%			
- Silt/ *Praf*	34.3	%	- Fine/ Fin	18.7	%	- Gravel/ Pietris	12.4	%
			- Midle/ Mijlociu	6.8	%	- Blocks/ Bolovanis		
			- Big/ Mare	13.6	%			

SOIL TYPE:/ Hard plastic dusty sand with gravel/

Denumire material: Nisip prăfos plastic tare cu pietriș

Name/Nume: **Signature/Semnatura:**

Performed/Efectuat: **Ionut Florin CARTIS**

Verified/Verificat: **Adrian CRISAN-PANTEA**

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: Code/Cod: F-GTF-4

ANEXA 6

CONTNUT DE BITUM MASF16

6pag.



SC PORR CONSTRUCT SRL
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LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 72 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 923 stg.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16** **Strewn place/** Locul asternerii **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 923 stg.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19 - 01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 6.03 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	Passings/ Treceri %										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**8.7**	**10.9**	**13.7**	**19.1**	**22.2**	**29.1**	**37.6**	**56.6**	**96.8**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence)
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order)
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page)

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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LABORATORY/ *LABORATOR*
Adress/ Adresa DN 7 Arad - Deva ***Vladimirescu KM 2, FN, Arad***

Authorization no. /Autorizatie nr: **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 73 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 923 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 923 dr.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19 - 01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 5.76 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	Passings/ Treceri %										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	7.2	9.5	11.5	18.0	21.1	27.7	37.2	54.1	100.0	100.0	100.0
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence)
Raportul de incercari nu poate fi multiplicat fara aprobarea laborstorului emitent (Test report can be copied only with the laboratory approval)
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Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

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LABORATORY/ *LABORATOR*
Adress/ Adresa DN 7 Arad - Deva, ***Vladimirescu KM 2, FN, Arad***

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 74 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 1456 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1456 dr.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19 - 01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 5.55 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/ Treceri %**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**7.8**	**8.9**	**11.3**	**14.5**	**18.0**	**26.9**	**36.1**	**51.2**	**99.8**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order)
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples)
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page)

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE
3299/10.10.2017

Code/Cod: F-D-16

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LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 75 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 1496 dr.**

Customer/ Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16**

Strewn place/ Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1496 dr.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19 - 01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 5.70 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	**Passings/ Treceri %**										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	**6.5**	**9.0**	**12.5**	**18.7**	**22.2**	**30.3**	**43.4**	**62.7**	**99.5**	**100.0**	**100.0**
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing).
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
Raportul de incercari nu poate fi utilizat decat exclusiv in scopul precizat in comanda (The report can only be used for the purpose specified in the order)
Rezultatele se refera strict la obiectele supuse incercarii (the results refer to tested samples).
Acest raport de incercare cuprinde 1 pagina (This official report of testing has 1 page)

Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Acest document poate fi reprodus numai cu acordul scris al emitentului

SC PORR CONSTRUCT SRL Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501	LABORATORY/ *LABORATOR* *Adress/ Adresa DN 7 Arad - Deva,* ***Vladimirescu KM 2, FN, Arad***	Authorization no. /Autorizatie nr **3299/10.10.2017**

Test Report No. / Raport de Incercare Nr. 76 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 1518 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1518 dr.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19** - **01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 5.68 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	Passings/ Treceri %										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	7.5	9.1	11.6	18.3	21.4	28.0	39.2	56.6	99.5	100.0	100.0
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence)
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ȘI ÎNCERCĂRI ÎN CONSTRUCȚII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAȚIE 3299/10.10.2017

Code/Cod: F-D-16

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Sediu social: B-dul Dimitrie Pompeiu, nr.5 - 7, Et. 3,RO 020335 Bucuresti, Sector 2, Tel: 021/3126500; Fax: 021/3126501

LABORATORY/ LABORATOR
Adress/ Adresa DN 7 Arad - Deva, Vladimirescu KM 2, FN, Arad

Authorization no. /Autorizatie nr: 3299/10.10.2017

Test Report No. / Raport de Incercare Nr. 77 / 01-02-19

Asphalt mixture/ Mixtura asfaltica
According to/ Conform SR EN 12697 -39,27,28,30,34

Sample/ Indicativ : **Pichet 1600 dr.** **Customer/** Beneficiar: SC GRIGO DESIGN SRL

Type of mixture/ Tip mixtura asfaltica: **MASF16** **Strewn place/** Locul asternerii: **Reabilitare DN 76 Varfurile - Stei km 69+350 - 102+660**

Sampling date/ Data prelevarii: **31.01. 2019**
Road layer/ Strat rutier: **strat de uzura**
Sampling place/ Locul prelevarii: **DN76 Varfurile - Stei Pichet 1600 dr.**
Receive date / Data intrarii in laborator: **31.01. 2019**
Test date / Data incercarii: **31-01-19 - 01-02-19**

Mix design No./ Reteta nr. -

1.1.Bitumen content in mixture/ Continut de bitum in mixtura: **-according to/** conform SR 174-1 **min.5.9 - max 6.5 %**

-obtained/ realizat 5.82 %

1.2.Aggregates grading/ Granulozitate agregate:

Mesh sizes/ Dimensiuni ochiuri	Passings/ Treceri %										
Sieve/ Sita(ciur) mm	0.063	0.100	0.2	0.63	1	2	4.0	8	16.0	25	31.5
Obtained dosage/ Dozaj obtinut:	7.3	8.7	11.0	15.4	18.8	26.6	41.0	59.1	100.0	100.0	100.0
Limits/ Limite cf. SR 174-1 min:	9	10	11	13	16	17	25	44	90	100	100
Limits/ Limite cf. SR 174-1 max:	12	14	15	20	22	25	37	59	100	100	100

S-au utilizat metode de analiză conform Procedurilor tehnice de incercare (The analyse methods were used according to the Tehnical Procedures for Testing)
Incercarile nu au fost efectuate sub presiuni de nici o natura (The tests have been carried out free of any influence).
Raportul de incercari nu poate fi multiplicat fara aprobarea laboratorului emitent (Test report can be copied only with the laboratory approval)
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Verified / Verificat
ing. Adrian CRISAN-PANTEA

LABORATOR DE ANALIZE ŞI ÎNCERCĂRI ÎN CONSTRUCŢII GRAD II
SC PORR CONSTRUCT SRL
AUTORIZAŢIE
3299/10.10.2017

Coda/Cod: F-D-16

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