

| № п/ч<br>Item № | № позиції<br>замовлення<br>Order<br>reference № | Ознака<br>обробки<br>Sign<br>treatment | Шифр<br>кальк.<br>групи<br>Group<br>code | Форма розкрою<br>Pattern<br>cutting | Якість<br>поверхні<br>Surface<br>quality | Точність<br>прокатки /<br>виготовлення<br>Rolling<br>accuracy /<br>manufacturing | Категорія<br>випряжки<br>Category<br>of<br>drawing | Площиність<br>Flatness | Характер<br>кромки<br>Trim<br>of edge | Гарантія<br>зварювання<br>Weldability | Одбюблення<br>поверхні<br>Surface finish | Інші<br>характеристики<br>Other<br>features |
|-----------------|-------------------------------------------------|----------------------------------------|------------------------------------------|-------------------------------------|------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------|------------------------|---------------------------------------|---------------------------------------|------------------------------------------|---------------------------------------------|
| 1-9             | 1                                               | Б/ТРАВЛ                                | 503                                      | 4                                   |                                          | Б                                                                                |                                                    | ПН                     | НО                                    | СВ                                    |                                          |                                             |

| № п/ч<br>Item № | № плавки<br>Heat № | Хімічний склад, % |            |            |            |            |            |            |            | Composition, % |             |            |            |             |          |            |             |
|-----------------|--------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|----------------|-------------|------------|------------|-------------|----------|------------|-------------|
|                 |                    | C<br>x100         | Mn<br>x100 | Si<br>x100 | S<br>x1000 | P<br>x1000 | Cr<br>x100 | Ni<br>x100 | Cu<br>x100 | As<br>x100     | N2<br>x1000 | Al<br>x100 | Ti<br>x100 | Mo<br>x1000 | CEV<br>% | V<br>x1000 | B<br>x10000 |
| 1               | 613119             | 14                | 42         | 2.2        | 35         | 23         | 4          | 1          | 1          | 8              | 8           |            | 0.1        | 5           | 0.221    | 4          |             |
| 2-9             | 713194-9           | 17                | 40         | 2          | 30         | 33         | 6          | 3          | 2          | 8              | 8           |            | 0.1        | 4           | 0.253    | 2          |             |

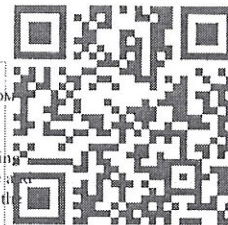
| № п/ч<br>Item № | Розміри зразка<br>Dim of specimen |                     | Місце відбиру Sample Location | Механічні і технологічні властивості Mechanical and technological properties |                                      |                                   |               |                       |                                   |                                      |   |                     |                                                  |                       |    |         |    |     |                 |   |                 | Номер зерна фериту<br>Grain size | Декарбонізація<br>Decarburization | Шорсткість<br>Roughness (RA) | Цementит<br>Cementite | Метод випробувань<br>Testing method |
|-----------------|-----------------------------------|---------------------|-------------------------------|------------------------------------------------------------------------------|--------------------------------------|-----------------------------------|---------------|-----------------------|-----------------------------------|--------------------------------------|---|---------------------|--------------------------------------------------|-----------------------|----|---------|----|-----|-----------------|---|-----------------|----------------------------------|-----------------------------------|------------------------------|-----------------------|-------------------------------------|
|                 |                                   |                     |                               | Тягочасовий опір<br>Tensile strength                                         | Гранична пластичність<br>Yield point | Відносне подовження<br>Elongation | Вигин<br>Bend | Твердість<br>Hardness | Глибина сферич. дупки<br>Erickson | Ударна в'язкість<br>Impact toughness |   |                     |                                                  |                       |    |         |    |     |                 |   |                 |                                  |                                   |                              |                       |                                     |
|                 | КCU                               |                     |                               |                                                                              |                                      |                                   |               |                       |                                   | KCV                                  |   |                     | Після механічного старіння<br>After mech. ageing |                       |    |         |    |     |                 |   |                 |                                  |                                   |                              |                       |                                     |
|                 | Т                                 | R <sub>m</sub> /MPa |                               |                                                                              |                                      |                                   |               |                       |                                   | R <sub>0.2</sub> /MPa                | Т | R <sub>m</sub> /MPa |                                                  | R <sub>0.2</sub> /MPa | Т  | KCU/MPa |    |     |                 |   |                 |                                  |                                   |                              |                       |                                     |
|                 |                                   |                     |                               |                                                                              |                                      |                                   |               |                       |                                   |                                      |   |                     |                                                  |                       |    |         | mm | l   | mm <sup>2</sup> | l | mm <sup>2</sup> |                                  |                                   |                              |                       |                                     |
| 1               | 4 00                              | 1500                | S.E                           | L.T                                                                          | 43.5                                 | 29.5                              | 30.0          | вд                    |                                   |                                      |   | mm                  | -20                                              | 8.2                   | 20 | 13.9    | 20 | 7.0 |                 |   |                 |                                  | руйн                              |                              |                       |                                     |
| 2-9             | 4 00                              | 1500                |                               |                                                                              |                                      |                                   |               |                       |                                   |                                      |   |                     | -20                                              | 7.6                   | 20 | 13.7    | 20 | 7.3 |                 |   |                 |                                  | руйн                              |                              |                       |                                     |
|                 | 4 00                              | 1500                |                               |                                                                              | 45.5                                 | 30.0                              | 34.0          | вд                    |                                   |                                      |   |                     | -20                                              | 8.2                   | 20 | 13.8    | 20 | 7.6 |                 |   |                 |                                  | руйн                              |                              |                       |                                     |
|                 | 4 00                              | 1500                |                               |                                                                              |                                      |                                   |               |                       |                                   |                                      |   |                     | -20                                              | 8.0                   | 20 | 13.8    | 20 | 7.4 |                 |   |                 |                                  | руйн                              |                              |                       |                                     |

"S-початок смуги/strip start; E-кінець смуги/strip end; L-подовжнє/longitudinal; T-поперечнє/Transverse"

ЗАУВ.Х/А: плавка з індексом Продукта аргоном Розкислена АІ



Підпис, підпис відповідальної особи  
Stamp, signature of the person in charge



4385230273

Достовірність сертифікату можна перевірити в реєстрі сертифікатів комбінату, на сайті <http://metinvest.io> шляхом введення номера сертифікату і шифру, розміщеного на зворотньому боці у графі "Штамп, підпис експерта", або шляхом прочитування QR-коду і переходу по прямому посиланню на сайт. В разі виявлення факту підробки сертифікатів просимо Вас повідомити про це на електронну адресу [otk@zaporizhstal.com](mailto:otk@zaporizhstal.com).  
The authenticity of the certificate can be checked in the register of the plant's certificates on the site <http://metinvest.io> by entering the certificate number and the cipher placed on the reverse side in the "Stamp, expert signature" cell, or by reading the QR code and go to a direct link to the site. In case of detection of the fact of forgery of certificates, we kindly ask you to inform about this to the email address [otk@zaporizhstal.com](mailto:otk@zaporizhstal.com).

Даний сертифікат якості підписаний електронним цифровим підписом контролера ВТК. Перевірити валідність документа можна на державному сайті <https://czo.gov.ua> verify.  
This quality certificate is signed by the electronic digital signature of the controller of the technical control department. You can check the validity of the document on the state website <https://czo.gov.ua/verify>.

## LIBERTY GALATI S.A. - Romania



LIBERTY

CUSTOMER / CLIENT : ThyssenKrupp Materials Bulgaria/ThyssenKrupp Materials

TEST REPORT 60116509

PRODUCT / PRODS : HOT DIP GALVANIZED COIL

ACCORDING TO : EN 10204/2004/2.2

STEEL GRADE/MARCA OTEL: DX51D

DATE : 16.05.2023

NORM / STANDARD : EN10346:2015;

ORDER / COMANDA : 50088513/2.7  
DISPATCH / AVIZ EXPEDITIE : 7001729558  
WAGON / ID TRANSPORT : NR 1251(EX.15332)  
TRACKING NO :  
PO.NO. : 5400197339

TOTAL NUMBER OF PIECES: 2 / TOTAL WEIGHT: 15.010,00 KG

| NO | COIL NO   | HEAT NO | CUST MAT CODE | DIMENSIONS | WEIGHT | PC     | TEST NO   | UTS   | EL(%) | ADER | GR  | ZN   | --- | --- | --- | --- | --- | --- |
|----|-----------|---------|---------------|------------|--------|--------|-----------|-------|-------|------|-----|------|-----|-----|-----|-----|-----|-----|
| NR | NR        | RULO    | SARJA         | COD        | MAT    | CLIENT | MAXXMMXMM | N/mm2 | %     | OK   | 105 | g/m2 | --- | --- | --- | --- | --- | --- |
| 1  | 11157/0/0 | Y919144 |               | 0.50x1000x | 7,58   | 1      | 11156/0/0 | 408   | 28    | OK   | 105 |      |     |     |     |     |     |     |
| 2  | 11343/0/0 | Y932437 |               | 1.00x1000x | 7,43   | 1      | 11156/0/0 | 408   | 28    | OK   | 105 |      |     |     |     |     |     |     |

CHEMICAL COMPOSITION (%) - L = Heat, P = Product

|          | C    | Si   | Mn   | P     | S     | Al    | Ti    | V     | Cu   | Ni   | Cr   | Mo    | Nb    | N2     | Ca     |
|----------|------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|-------|--------|--------|
| HEAT NO  | 0,08 | 0,01 | 0,23 | 0,015 | 0,012 | 0,055 | 0,009 | 0,002 | 0,04 | 0,03 | 0,03 | 0,004 | 0,001 | 0,0061 | 0,0001 |
| L 932437 | 0,08 | 0,01 | 0,23 | 0,015 | 0,012 | 0,055 | 0,009 | 0,002 | 0,04 | 0,03 | 0,03 | 0,004 | 0,001 | 0,0061 | 0,0001 |

Steelmaking process:  
Made by BOP-Continuous Casting  
Galvanizing classDelivery condition: Chemical Passivation and  
uncoiled

Personnel qualification:..

THIRD PART INSPECTION

HEAD OF QUALITY CONTROL  
PRILEMARIANAChecking of marking, surface, shape and  
dimensions-ok  
Surface: EN10346:2015;  
Tolerance:  
Size: EN 10143:2006  
Flatness: EN 10143:2006

SIGNATURE

LIBERTY GALATI S.A. No.1 Calea Saritdan,  
Galati, Postcode 800698, Romania  
libertysteelgroup.com.ro/We hereby certify that the material has been made by an approved process and satisfactorily tested in accordance with the requirements specified in the order with  
satisfactory results. All raw materials used in steel production are tested for radioactive contamination. Therefore we guarantee that the material is free from radioactive contamination and do not exceed the clearing limit value of 0.1 Bq/g, according with the Radiation Protection Ordinance (SR:Servo Annex III, Section 5)Cod: P SAP 017 rev.1  
Page:1/01





ArcelorMittal

ARCELORMITTAL FRANCE MARDYCK  
ROUTE DE SPICKER  
BP 123 F-59780 GRANDE SYNTHE

INSPECTION CERTIFICATE EN 10204-2.2

Mill's identification

MK

Hot dip galv. Coil

A01

A04

B03

CCC: According to  
specifications  
BL: As rolled  
D: Stress relieving  
R: Annealed

Inspection organism

METALLURGIE  
QUALITE

ThyssenKrupp Metallic Products  
Cheminée aux 43, 527-Vieille  
1879 SOPHA  
Belgium

Customer and/or consignee

Customer's Order Nbr  
HDCL-MAY23-ATL

Mill's Order Nbr  
GDSEITY001 000004

Grade and technical specifications  
Quality: DX51D-Z EN10346:2015  
Coating Zinc 100.00 g/42  
E Passivation

Standard: EN10346:2015  
Sponge  
Minified spang

Appearance  
A

Protection  
WITHOUT PROTECT  
WITHOUT PROTECT

Delivery condition  
CCC B04

Minimum

A05

A06

A07

A08

34,0

34,0

34,0

34,0

B01/B02

Maximum

500

270

18

0,1800

1,2000

0,1200

0,0450

0,5000

0,3000

34,0

34,0

34,0

34,0

B05

Product identification

Heat number

P Weight

Ys Ts

EL% YS TS EL%

MPa MPa (2)

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

807

C00

CM

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

C12

C13

C11

71385902

8643084490

F

7540

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

71385901

8643084490

F

7500

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

192

304

42

(1)

(2)

(3)

(4)

(5)

Location  
D: Head  
M: Middle  
F: Tail

1: LO = 80mm  
2: LO = 565mm  
3: JIS 25x50

C01

C10

GM2

We hereby certify that the above cited shipment was produced according to the technical specifications of the contract and that, with inspection and tests completed, it meets those specifications as well as all norms and standards referred to in the contract.

Inspection of markings, surface, sizes: satisfactory.

Z01

D01

Date 21/04/23  
Receiving Agent  
S.MATEOS

111 2022/203

## LIBERTY GALATI S.A. - Romania



LIBERTY

CUSTOMER / CLIENT : ThyssenKrupp Materials Bulgaria/ThyssenKrupp Materials

TEST REPORT 70142250

ORDER / COMANDA : 50087309/1\_3

BULGARIA

PRODUCT / PRODUS : COLD ROLLED COIL

ACCORDING TO : EN 10204/2004/2.2

DISPATCH / AVIZ EXPEDITIE : 7001699416

STEEL GRADE/MARCA OTEL: DC01

DATE : 28.11.2022

WAGON / ID TRANSPORT : NR 1757(Ex.15430)

NORM / STANDARD : EN10130:2006;

TRACKING NO. :  
FO.NO. : 5400191983

TOTAL NUMBER OF PIECES: 4 / TOTAL WEIGHT: 32.530,00 KG

| NO | COIL NO     | HEAT NO | CUST.MAT.CODE | DIMENSIONS      | WEIGHT   | PC        | TEST NO | UTS | YTS | EL(%) |
|----|-------------|---------|---------------|-----------------|----------|-----------|---------|-----|-----|-------|
| NR | NR          | RULOU   | SARJA         | DIMENSIONI      | GREUTATE | BUC NR.   | PROBA   | Rm  | Re  | A     |
| 1  | R1/744220/3 | Y929271 |               | 2,00x1500x 8,02 | 1        | 62229/E/0 |         | 322 | 234 | 38    |
| 2  | R1/744221/2 | Y929271 |               | 2,00x1500x 7,80 | 1        | 62228/E/0 |         | 330 | 240 | 38    |
| 3  | R1/744221/3 | Y929271 |               | 2,00x1500x 8,32 | 1        | 62228/E/0 |         | 330 | 240 | 38    |
| 4  | R1/744224/3 | Y931083 |               | 3,00x1500x 8,39 | 1        | 62240/E/0 |         | 325 | 225 | 38    |

CHEMICAL COMPOSITION (%) - L = Heat, P = Product

|   | HEAT NO | C    | Si   | Mn   | P     | S     | Al    | Ti    | V     | Cu   | Ni   | Cr   | Mo    | Nb    | B      | N2     | Ca     |
|---|---------|------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|-------|--------|--------|--------|
|   |         |      |      |      |       |       |       |       |       |      |      |      |       |       |        |        |        |
| L | 929271  | 0,05 | 0,01 | 0,23 | 0,012 | 0,009 | 0,037 | 0,000 | 0,002 | 0,06 | 0,05 | 0,02 | 0,003 | 0,002 | 0,0001 | 0,0070 | 0,0003 |
| L | 931083  | 0,04 | 0,01 | 0,22 | 0,011 | 0,013 | 0,032 | 0,000 | 0,002 | 0,06 | 0,05 | 0,02 | 0,003 | 0,001 | 0,0001 | 0,0070 | 0,0003 |

Steelmaking process:  
Made by BOF-Continuous Casting  
Galvanizing classDelivery condition: Oiled  
Checking of marking, surface, shape and  
dimensions-OK  
Surface: EN10130:2006;  
Tolerance:  
Sizes: EN 10131:2006  
Flatness: EN 10131:2006

Personnel qualification:.

THIRD PART INSPECTION

SIGNATURE

HEAD OF QUALITY CONTROL  
PRATHEMARIENNA

INSPECTOR'S STAMP

INSPECTOR

LIBERTY GALATI S.A. No.1 Calea Smardan,  
Galati, Postcode 800698, Romania  
libertysteelgroup.com/ro/We hereby certify that the material has been made by an approved process and satisfactorily tested in accordance with the requirements specified in the order with  
the exception of the radiographic examination. Therefore we guarantee, that our products are free of  
radioactive contamination and do not exceed the clearing limit value of 0,1 Bq/g, according with the Radiation Protection Ordinance (Strikovo Annex III, Section 5)Cod. P SAP 017 Rev.1  
Page:1 /01





ORDER / COMANDA : 50088548/\_8  
DISPATCH / AVIZ EXPEDITIVE : 7001725993  
WAGON / ID TRANSPORT : GL40LRM/BR44LRM  
TRACKING NO. :  
PO.NO. : 0

|           | CHEMICAL COMPOSITION (%) | / ANALIZA CHIMICA (%) | - L = heat / lichid , p = product / produs                                                       |       |       |       |       |       |      |      |      |       |       |        |        |   |       |
|-----------|--------------------------|-----------------------|--------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|------|------|------|-------|-------|--------|--------|---|-------|
| SARJA     | ---                      | Si----                | Mn-----P-----S-----Al-----Ti-----V-----Cu-----Ni-----Cr-----Mo-----Nb-----B-----N2-----C+MN/CEV2 |       |       |       |       |       |      |      |      |       |       |        |        |   |       |
| L 9332164 | 0,12                     | 0,02                  | 0,48                                                                                             | 0,019 | 0,012 | 0,043 | 0,001 | 0,003 | 0,12 | 0,05 | 0,04 | 0,005 | 0,002 | 0,0001 | 0,0077 | - | 0,222 |

CHEMICAL COMPOSITION (%) / ANALIZA CHIMICA (%) - L = heat / lichid , p = product / produs

SEMNATURA

017 rev.1  
Page:1 /01

СЕРТИФІКАТ ЯКОСТІ / QUALITY CERTIFICATE № 604547

від / date 04.04.2023

Одержувач / consignee

Замовлення комбінату № / Manufacturer's works order

ДЛЯ ТОВ "МЕТІНВЕСТ-СМЦ" Західна Україна  
5020 м. Тернопіль вул. Поліська, б.11  
гаванія призначення ТЕРНОПІЛЬ (Льв.З.А.П.)

2023 991000-0177

Контракт № / Contract

МЗК-1327342/10/20/СМЦ-С

від/ date 06.10.2020

Вид свідчення про випробування  
Type of inspection document  
EN 10204/3.1

ірон № / Freight car: 55081517

Вид вантажмиць / Type of packages

пачки / packs

Кількість місць/Number of packages

11

Найменування та код товару / Description and code of goods

9100 Прокат холоднокатаний тонколистовий з вуглецевої,  
якісної сталі в листах

аркування продукції: ХОЛОДНОКАТАНИЙ ЛИСТ / COLD ROLLED STEEL SHEETS

НД на продукцію; хімскад / Specification forms and record

ДСТУ 2834-94(ГОСТ 16523-97)

ДСТУ 7809:2015

ДСТУ 8971:2019

Результати випробувань / Result of trial

| Item № | № плавки<br>Heat № | № партії<br>Batch № | Марка<br>Grade | Категорія<br>Category | Група<br>міцності<br>Group of<br>strength | Розміри, мм<br>Dimensions, mm |                 |                   | Кількість<br>товару<br>Number<br>of<br>goods | С<br>о<br>п<br>т | Маса, т<br>Mass, tons |                   |              |
|--------|--------------------|---------------------|----------------|-----------------------|-------------------------------------------|-------------------------------|-----------------|-------------------|----------------------------------------------|------------------|-----------------------|-------------------|--------------|
|        |                    |                     |                |                       |                                           | Товщина<br>Thickness          | Ширина<br>Width | Довжина<br>Length |                                              |                  | брутто<br>gross       | брутто2<br>gross2 | нетто<br>net |
| 1      | 523055-1           | 7725-2a             | 08КП           | 6                     | K260B                                     | 0,50                          | 1000            | 2000              | 622                                          | 1                | 4,945                 |                   | 4,885        |
| 2      | 130685             | 7211-1a             | 08КП           | 6                     | K260B                                     | 0,80                          | 1000            | 2000              | 311                                          | 1                | 3,970                 |                   | 3,915        |
| 3      | 130685             | 7211-1              | 08КП           | 6                     | K260B                                     | 0,80                          | 1000            | 2000              | 472                                          | 1                | 5,990                 |                   | 5,930        |
| 4      | 813008             | 7566-1              | 08КП           | 6                     | K260B                                     | 0,80                          | 1000            | 2000              | 434                                          | 1                | 5,520                 |                   | 5,460        |
| 5      | 130606             | 7574-1              | 08КП           | 6                     | K260B                                     | 0,50                          | 1000            | 2000              | 542                                          | 1                | 4,320                 |                   | 4,260        |
| 6      | 130606             | 7574-2a             | 08КП           | 6                     | K260B                                     | 0,50                          | 1000            | 2000              | 620                                          | 1                | 4,930                 |                   | 4,870        |
| 7      | 130606             | 7574-2              | 08КП           | 6                     | K260B                                     | 0,50                          | 1000            | 2000              | 721                                          | 1                | 5,730                 |                   | 5,670        |
| 8      | 813008             | 7559-3              | 08КП           | 6                     | K260B                                     | 0,80                          | 1000            | 2000              | 440                                          | 1                | 5,590                 |                   | 5,530        |
| 9      | 130818-1           | 7778-4              | 08КП           | 6                     | K260B                                     | 1,00                          | 1250            | 2500              | 244                                          | 1                | 6,070                 |                   | 6,000        |
| 10     | 130818-1           | 7778-2a             | 08КП           | 6                     | K260B                                     | 1,00                          | 1250            | 2500              | 248                                          | 1                | 6,160                 |                   | 6,090        |
| 11     | 130740-3           | 7627-в              | 08КП           | 6                     | K260B                                     | 1,50                          | 1250            | 2500              | 135                                          | 1                | 3,080                 |                   | 4,980        |
| Разом: |                    |                     |                |                       |                                           |                               |                 |                   |                                              |                  | 58,305                |                   | 57,590       |

Ними цього сертифікату підтверджується, що продукція випробувана і відповідає стандартам якості, діючим в Україні, технічним умовам і погодженим умовам замовлення контракту  
s hereby certified that the quality of goods mentioned in this shipping document is in conformity with the standards in the Ukraine, specifications and goods may be expofed.



| № п/ч<br>Item № | № позиції<br>замовлення<br>Order<br>reference № | Ознака<br>обробки<br>Sign<br>treatment | Шифр<br>кальк.<br>групи<br>Group<br>code | Форма розрізу<br>Pattern<br>cutting | Якість<br>поверхні<br>Surface<br>quality | прокатки /<br>виготовлення<br>Rolling<br>accuracy /<br>manufacturing | Категорія<br>вигляди<br>Category<br>of<br>drawing | Плюс /<br>Flaws | Характер<br>хромки<br>Trim<br>of edge | Гарантія<br>зварюваності<br>Weldability | Односторонній<br>поверхні<br>Surface<br>finish | Інші<br>характеристики<br>Other<br>features |
|-----------------|-------------------------------------------------|----------------------------------------|------------------------------------------|-------------------------------------|------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------|-----------------|---------------------------------------|-----------------------------------------|------------------------------------------------|---------------------------------------------|
| 1;5-7           | 1                                               | ТРАВЛ                                  | 639                                      | 4                                   | III                                      | БТ БД                                                                | Г                                                 | ГН              | НО                                    |                                         |                                                |                                             |
| 2;4;8           | 2                                               | ТРАВЛ                                  | 639                                      | 4                                   | III                                      | БТ БД                                                                | Г                                                 | ГН              | НО                                    |                                         |                                                |                                             |
| 9-10            | 3                                               | ТРАВЛ                                  | 639                                      | 4                                   | III                                      | БТ БД                                                                | Г                                                 | ГН              | НО                                    |                                         |                                                |                                             |
| 11              | 5                                               | ТРАВЛ                                  | 639                                      | 4                                   | III                                      | БТ БД                                                                | Г                                                 | ГН              | НО                                    |                                         |                                                |                                             |

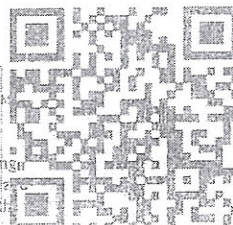
| № п/ч<br>tem № | № плавки<br>Heat № | Хімічний склад %<br>Composition, % |            |            |            |            |            |            |            |            |             |            |            |             |          |            |             |  |
|----------------|--------------------|------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|-------------|----------|------------|-------------|--|
|                |                    | C<br>x100                          | Mn<br>x100 | Si<br>x100 | S<br>x1000 | P<br>x1000 | Cr<br>x100 | Ni<br>x100 | Cu<br>x100 | As<br>x100 | Nb<br>x1000 | Al<br>x100 | Ti<br>x100 | Mo<br>x1000 | CEV<br>% | V<br>x1000 | B<br>x10000 |  |
| 1              | 523055-1*          | 7                                  | 33         | 1.1        | 32         | 22         | 7          | 2          | 1          | 8          |             |            | 0,1        | 2           | 0,142    | 3          |             |  |
| 2-3            | 130685*            | 10                                 | 33         | 1.4        | 34         | 14         | 2          | 1          | 1          | 8          |             |            | 0,1        | 2           | 0,161    | 2          |             |  |
| 4;8            | 813008*            | 12                                 | 41         | 1.8        | 40         | 32         | 4          | 1          | 1          | 8          |             |            | 0,1        | 4           | 0,199    | 2          |             |  |
| 5-7            | 130606*            | 10                                 | 35         | 1.6        | 16         | 15         | 4          | 1          | 1          | 8          |             |            | 0,1        | 2           | 0,169    | 2          |             |  |
| 9-10           | 130818-1*          | 8                                  | 38         | 1.2        | 22         | 20         | 4          | 1          | 2          | 8          |             |            | 0,1        | 3           | 0,154    | 1          |             |  |
| 11             | 130740-3*          | 9                                  | 37         | 1.5        | 27         | 19         | 3          | 1          | 1          | 8          | 6           |            | 0,1        | 3           | 0,16     | 1          |             |  |

| № п/ч<br>Item № | Механічні і технологічні властивості      Mechanical and technological properties |                 |                                |                                    |                                    |                                  |                                   |               |                       |                                  |                                      |     |                                                  |    |    |   |    |      |    |    | Номер зерна фериту<br>Grain size | Декарбонізація<br>Decarburization | Шористість<br>Roughness (RA) | Циментит<br>Cementite | Метод випробувань<br>Testing method |      |
|-----------------|-----------------------------------------------------------------------------------|-----------------|--------------------------------|------------------------------------|------------------------------------|----------------------------------|-----------------------------------|---------------|-----------------------|----------------------------------|--------------------------------------|-----|--------------------------------------------------|----|----|---|----|------|----|----|----------------------------------|-----------------------------------|------------------------------|-----------------------|-------------------------------------|------|
|                 | Розміри зразка<br>D.m of specimen                                                 |                 | Місце відб.пр. Sample Location | Напрямок відб.пр. Dir. of test pr. | Темчасовий оуп<br>Tensile strength | Гранична штиність<br>Yield point | Відносне подовження<br>Elongation | Витяг<br>Bend | Твердість<br>Hardness | Глибина сферич. лунки<br>Eickson | Ударна в'язкість<br>Impact toughness |     |                                                  |    |    |   |    |      |    |    |                                  |                                   |                              |                       |                                     |      |
|                 | Товщина<br>Thickness                                                              | Ширина<br>Width |                                |                                    |                                    |                                  |                                   |               |                       |                                  | KCU                                  | KCV | Після механічного старіння<br>After mech. ageing |    |    |   |    |      |    |    |                                  |                                   |                              |                       |                                     |      |
|                 |                                                                                   |                 |                                |                                    |                                    |                                  |                                   |               |                       |                                  |                                      |     |                                                  | mm | mm | t | mm | t    | mm |    |                                  |                                   |                              |                       |                                     |      |
|                 |                                                                                   |                 |                                |                                    |                                    |                                  |                                   |               |                       |                                  |                                      |     |                                                  |    |    |   |    |      |    | mm |                                  |                                   |                              |                       |                                     | t    |
| 1               | 0.50                                                                              | 1000            |                                |                                    | 37,0                               |                                  | 31,0                              | уд            |                       |                                  | 9,0                                  |     |                                                  |    |    |   |    | 10   |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 2-3             | 0.80                                                                              | 1000            |                                |                                    | 38,0                               |                                  | 32,0                              | уд            |                       |                                  | 9,9                                  |     |                                                  |    |    |   |    | 10   |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 4               | 0.80                                                                              | 1000            |                                |                                    | 40,0                               |                                  | 34,0                              | уд            |                       |                                  | 9,9                                  |     |                                                  |    |    |   |    | 10   |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 5-7             | 0.50                                                                              | 1000            |                                |                                    | 38,0                               |                                  | 31,0                              | уд            |                       |                                  | 8,9                                  |     |                                                  |    |    |   |    | 10   |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 8               | 0.80                                                                              | 1000            |                                |                                    | 41,0                               |                                  | 33,0                              | уд            |                       |                                  | 9,7                                  |     |                                                  |    |    |   |    | 10   |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 9-10            | 1.00                                                                              | 1250            |                                |                                    | 37,0                               |                                  | 38,0                              | уд            |                       |                                  | 10,9                                 |     |                                                  |    |    |   |    | 10-9 |    |    |                                  |                                   |                              |                       |                                     | руйн |
| 11              | 1.50                                                                              | 1250            |                                |                                    | 36,0                               |                                  | 36,0                              | уд            |                       |                                  | 11,5                                 |     |                                                  |    |    |   |    | 9-10 |    |    |                                  |                                   |                              |                       |                                     | руйн |

аток смуги/strip start; Е-кінець смуги/strip end; L-поздовжнє/longitudinal; T-поперечне/Transverse"

МІТКА: КОНТРОЛЬНА СТРИЧКА ЗЕЛЕНА  
X/A: плавка з індексом Розкислена АІ; плавка з індексом Прорізна аргоном Розкислена АІ

Істинність сертифікату можна перевірити в реєстрі сертифікатів комбінату, на сайті <http://metinvest.io> шляхом введення номера сертифікату і шифру, розміщеного на зворотньому боці у графі "Штамп, підпис експерта", або шляхом сканування QR-коду і переходу по прямому посиланню на сайт. В разі виявлення факту підробки сертифікатів о Вас повідомити про це на електронну адресу [otk@zaporizhstal.com](mailto:otk@zaporizhstal.com)  
Authenticity of the certificate can be checked in the register of the plant's certificates on the site <http://metinvest.io> by entering certificate number and the cipher placed on the reverse side in the "Stamp, expert signature" cell, or by reading the QR code and direct link to the site. In case of detection of the fact of forgery of certificates, we kindly ask you to inform about this to the



Штамп, підпис відповідальної особи  
Stamp, signature of the person in charge



5762240263



Публічне акціонерне товариство "Запорізький металургійний комбінат "Запоріжсталь"  
Public Joint Stock Company "Integrated Iron and Steel Works "Zaporizhstal"

Україна 69008 м.Запоріжжя Південне шосе,72  
факс +38 (061) 213-18-58

UKRAINE 69008 Zaporizhzhya 72, Pivdenne Shose  
Fax +38 (061) 213-18-58

СЕРТИФІКАТ ЯКОСТІ / QUALITY CERTIFICATE № 605672

від / date 15.04.2023

Одержувач / consignee

Замовлення комбінату № / Manufacturer's works order

Філія ТОВ "МЕТІНВЕСТ-СМЦ" у м.Дніпро

2023 991000-0276

52012 с. Партизанське вул.Заводська, 6.25

Контракт № / Contract

станція призначення НИЖНЬОДНІПРОВСЬК-ПРИСТАНЬ (Придн.ЗАЛ.)

МЗК-1327342/10/20/СМЦ-С

від/date 06.10.2020

Вид свідчення про випробування  
Type of inspection document  
EN 10204/3.1

|                                                                                                                                                                                                                    |                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Вагон № / Freight car: 67913657                                                                                                                                                                                    | Вид вантажмість / Type of packages пачки / packs<br>Кількість місць/Number of packages 2                                      |
| Найменування та код товару / Description and code of goods<br>99100 Прокат холоднокатаний тонколистовий з вуглецевої<br>якісної сталі в листах<br>ування продукції: ХОЛОДНОКАТАНИЙ ЛИСТ / COLD ROLLED STEEL SHEETS | НД на продукцію; хімсклад / Specification forms and record<br>ДСТУ 2834-94(ГОСТ 16523-97)<br>ДСТУ 7809:2015<br>ДСТУ 8971:2019 |

Результати випробувань / Result of trial

| № п/п<br>Item № | № плавки<br>Heat № | № партії<br>Batch № | Марка<br>Grade | Категорія<br>Category | Група<br>міцності<br>Group of<br>strength | Розміри, мм<br>Dimensions, mm |                  |                   | Кількість<br>товару<br>Number<br>of<br>goods | С<br>о<br>р<br>т | Маса, т<br>Mass, tons |                   |              |
|-----------------|--------------------|---------------------|----------------|-----------------------|-------------------------------------------|-------------------------------|------------------|-------------------|----------------------------------------------|------------------|-----------------------|-------------------|--------------|
|                 |                    |                     |                |                       |                                           | Товщина<br>Thickness          | Ширинна<br>Width | Довжина<br>Length |                                              |                  | брутто<br>gross       | брутто2<br>gross2 | нетто<br>net |
| 1               | 130730-1           | 7369-16             | 08КП           | 6                     | K260B                                     | 1,50                          | 1250             | 2500              | 145                                          | 1                | 5,415                 |                   | 5,330        |
| 2               | 130730-1           | 7369-1в             | 08КП           | 6                     | K260B                                     | 1,50                          | 1250             | 2500              | 163                                          | 1                | 6,130                 |                   | 6,000        |
| Разом:          |                    |                     |                |                       |                                           |                               |                  |                   |                                              |                  | 11,545                |                   | 11,330       |



Даними цього сертифікату підтверджується, що продукція випробувана і відповідає стандартам якості, діючим в Україні, технічним умовам і погодженим умовам замовлення контракту  
It is hereby certified that the quality of goods mentioned in this shipping document is in conformity with the standards in the Ukraine, specifications and goods may be expofed.

| № п/ч<br>ст № | № позиції<br>замовлення<br>Order<br>reference № | Ознака<br>обробки<br>Sign<br>treatment | Шифр<br>кальк.<br>групи<br>Group<br>code | Форма розкрою<br>Pattern cutting | Якість<br>поверхні<br>Surface<br>quality | прокатки /<br>виготовлення<br>Rolling<br>accuracy /<br>manufacturing | Категорія<br>витяжки<br>Category<br>of<br>drawing | Плоскість<br>Flatness | Характер<br>кромки<br>Trim<br>of edge | Гарантия<br>зварювання<br>Weldability | Однорівнева<br>поверхня<br>Surface finish | Інші<br>характеристики<br>Other<br>features |
|---------------|-------------------------------------------------|----------------------------------------|------------------------------------------|----------------------------------|------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------|-----------------------|---------------------------------------|---------------------------------------|-------------------------------------------|---------------------------------------------|
| 1-10          | 3                                               | Б/ТРАВЛ                                | 503                                      | 4                                |                                          | Б                                                                    |                                                   | ПН                    | НО                                    | СВ                                    |                                           |                                             |

| з п/ч<br>ст № | № плавки<br>Heat №  | Хімічний склад, % |            |            |            |            |            |            |            |            |             | Composition, % |            |             |          |            |             |
|---------------|---------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|----------------|------------|-------------|----------|------------|-------------|
|               |                     | C<br>x100         | Mn<br>x100 | Si<br>x100 | S<br>x1000 | P<br>x1000 | Cr<br>x100 | Ni<br>x100 | Cu<br>x100 | As<br>x100 | N2<br>x1000 | Al<br>x100     | Ti<br>x100 | Mo<br>x1000 | CEV<br>% | V<br>x1000 | B<br>x10000 |
| 1-8           | 623066 <sup>a</sup> | 15                | 43         | 2.1        | 30         | 40         | 5          | 1          | 1          | 8          | 8           |                | 0.1        | 4           | 0.234    | 2          |             |
| 1-10          | 813023 <sup>a</sup> | 18                | 37         | 2          | 37         | 17         | 4          | 1          | 1          | 8          | 8           |                | 0.1        | 3           | 0.252    | 1          |             |

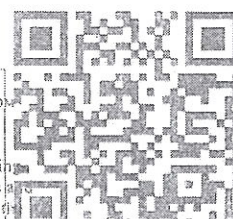
| № п/ч<br>ст № | Механічні і технологічні властивості<br>Mechanical and technological properties |      |                                 |      |                                    |      |                                      |    |                                    |  |                                    |  |                                    |  |                                    |     |                                      |      |
|---------------|---------------------------------------------------------------------------------|------|---------------------------------|------|------------------------------------|------|--------------------------------------|----|------------------------------------|--|------------------------------------|--|------------------------------------|--|------------------------------------|-----|--------------------------------------|------|
|               | Розміри<br>зразка<br>D.m of<br>specimen                                         |      | Місце відб. пр. Sample Location |      | Температура випр. Dlr. of test pr. |      | Температура випр. Dlr. of test pr.   |    | Температура випр. Dlr. of test pr. |  | Температура випр. Dlr. of test pr. |  | Температура випр. Dlr. of test pr. |  | Температура випр. Dlr. of test pr. |     | Температура випр. Dlr. of test pr.   |      |
|               | Товщина<br>Thickness                                                            |      | Ширина<br>Width                 |      | Тягнотривкість<br>Tensile strength |      | Гранична пластичність<br>Yield point |    | Відносне подовження<br>Elongation  |  | Вгин<br>Bend                       |  | Твердість<br>Hardness              |  | Глибина сфериц. лунки<br>Erickson  |     | Ударна в'язкість<br>Impact toughness |      |
|               | mm                                                                              |      | mm                              |      | kgf/mm <sup>2</sup>                |      | kgf/mm <sup>2</sup>                  |    | %                                  |  |                                    |  |                                    |  | mm                                 |     | t                                    |      |
|               | mm                                                                              |      | mm                              |      | kgf/mm <sup>2</sup>                |      | kgf/mm <sup>2</sup>                  |    | %                                  |  |                                    |  |                                    |  | mm                                 |     | t                                    |      |
| 1-8           | 5,00                                                                            | 1500 | 5,00                            | 1500 | 46,5                               | 35,0 | 28,0                                 | уд |                                    |  |                                    |  |                                    |  | -20                                | 8,7 | 20                                   | 7,2  |
|               | 5,00                                                                            | 1500 | 5,00                            | 1500 | 46,5                               | 35,0 | 28,0                                 | уд |                                    |  |                                    |  |                                    |  | -20                                | 9,5 | 20                                   | 6,9  |
| 1-10          | 5,00                                                                            | 1500 | 5,00                            | 1500 | 44,5                               | 30,0 | 30,0                                 | уд |                                    |  |                                    |  |                                    |  | -20                                | 8,9 | 20                                   | 13,6 |
|               | 5,00                                                                            | 1500 | 5,00                            | 1500 | 44,5                               | 30,0 | 30,0                                 | уд |                                    |  |                                    |  |                                    |  | -20                                | 8,9 | 20                                   | 13,6 |

рок смуги/strip start; Е-кінець смуги/strip end; L-подовжнє/longitudinal; Т-поперечнє/Transverse"

ВА: плавка з індексом Пролета аргонс Розкислена АІ

Штамп, підпис відповідальної особи  
Stamp, signature of the person in charge

Після сертифікату можна перевірити в реєстрі сертифікатів комбінату, на сайті <http://metinvest.io> шляхом  
пошуку за номером сертифікату і шифром, розміщеним на зворотньому боці у графі "Штамп, підпис експерта", або шляхом  
сканування QR-коду і переходу по прямому посиланню на сайт. В разі виявлення факту підробки сертифікатів  
Зас повідомити про це на електронну адресу [otk@zaporizhstal.com](mailto:otk@zaporizhstal.com)  
Validity of the certificate can be checked in the register of the plant's certificates on the site <http://metinvest.io> by entering  
the number and the cipher placed on the reverse side in the "Stamp, expert signature" cell, or by reading the QR code and  
clicking the link to the site. In case of detection of the fact of forgery of certificates, we kindly ask you to inform about this to the  
plant's management.







2032

**СЕРТИФИКАТ КАЧЕСТВА**

№ 04279

**В СООТВЕТСТВИИ С**
**EN 10204 / 3.1: 2005**
**Заказчик:**
**"МЕТИНВЕСТ СМЦ ООО" Ул.Острожских Князей, 8, 01010, Киев, Украина**
**Наименование продукции:**
**УГОЛОК ГОРЯЧЕКАТАНЫЙ РАВНОПОЛОЧНЫЙ**
**Марка стали:**
**S235JR + AR, EN10025-1,2**

| №            | Профиль размер<br>мм | Длина<br>мм          | Масса нетто<br>т | Масса брутто<br>т | Количество<br>товара, шт | Качество | Стандарт                     |
|--------------|----------------------|----------------------|------------------|-------------------|--------------------------|----------|------------------------------|
| 1            | 25x25x3              | 6000<br>+50 мм/-0 мм | 110,054          | 110,146           | 46                       | S235JR   | EN10025:2019<br>EN 10056-1,2 |
| 2            | 32x32x4              | 6000<br>+50 мм/-0 мм | 52,155           | 52,199            | 22                       | S235JR   | EN10025:2019<br>EN 10056-1,2 |
| 3            | 35x35x4              | 6000<br>+50 мм/-0 мм | 39,359           | 39,383            | 17                       | S235JR   | EN10025:2019<br>EN 10056-1,2 |
| 4            | 40x40x4              | 6000<br>+50 мм/-0 мм | 41,661           | 41,917            | 18                       | S235JR   | EN10025:2019<br>EN 10056-1,2 |
| 5            | 45x45x4              | 6000<br>+50 мм/-0 мм | 80,702           | 80,774            | 36                       | S235JR   | EN10025:2019<br>EN 10056-1,2 |
| <b>Всего</b> |                      |                      | <b>324,151</b>   | <b>324,429</b>    | <b>139</b>               |          |                              |

**Химический состав - %**

| № | Плавка | C<br>x100 | Mn<br>x100 | Si<br>x100 | P<br>x1000 | S<br>x1000 | Cr<br>x100 | Ni<br>x100 | Cu<br>x100 | As<br>x1000 | N<br>x1000 | Ceq  |
|---|--------|-----------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------|
| 1 | 125114 | 16        | 62         | 18         | 21         | 28         | 7          | 3          | 5          | 3           | 9          | 0.28 |
| 2 | 210828 | 17        | 62         | 20         | 20         | 4          | 4          | 2          | 4          | 3           | 7          | 0.29 |
| 3 | 210851 | 16        | 60         | 17         | 23         | 7          | 6          | 3          | 4          | 2           | 7          | 0.28 |
| 4 | 220818 | 17        | 60         | 17         | 15         | 6          | 4          | 3          | 4          | 3           | 8          | 0.28 |
| 5 | 210851 | 16        | 60         | 17         | 26         | 7          | 6          | 3          | 4          | 2           | 7          | 0.28 |
| 6 | 210851 | 16        | 80         | 17         | 26         | 7          | 8          | 3          | 4          | 2           | 7          | 0.28 |
| 7 | 310453 | 16        | 59         | 17         | 21         | 10         | 5          | 2          | 2          | 4           | 7          | 0.27 |
| 8 | 310453 | 16        | 59         | 17         | 21         | 10         | 5          | 2          | 2          | 4           | 7          | 0.27 |

**Механические свойства - 1Мпа = 1N/mm²**

| № | Плавка | Предел текуч. | Временное сопротивление<br>разрыву | Относит. удлинение | Холодный изгиб |
|---|--------|---------------|------------------------------------|--------------------|----------------|
|   |        | Re, MPa       | Rm, MPa                            | A, %               |                |
| 1 | 125114 | 353           | 484                                | 37,1               |                |
| 2 | 210828 | 348           | 482                                | 37,1               |                |
| 3 | 210851 | 353           | 485                                | 38,6               |                |
| 4 | 220818 | 342           | 473                                | 38,6               |                |
| 5 | 210851 | 386           | 492                                | 38,8               |                |
| 6 | 210851 | 300           | 488                                | 37,7               |                |
| 7 | 310453 | 333           | 453                                | 33,0               |                |
| 8 | 310453 | 331           | 455                                | 39,1               |                |

Настоящим удостоверяется, что качество товаров, упомянутых в этом документе, соответствует условиям, и товар может быть экспортирован.  
Производство не является источником радиоактивного излучения. Он не превышает предельные значения для излучения, которые могут отрицательно влиять на организм человека.

СМК: Bureau Veritas сертифицирована в соответствии с ISO 9001: 2015

Качество поверхности: класса C, подгруппа 1, согласно EN 10163-3

Цветовая маркировка: 25x25x3 - белый; 32x32x4 - синий; 35x35x4 - белый/желтый/оранжевый  
40x40x4 - белый/синий/красный; 45x45x4 - зеленый/красный

Дата: 27.04.2023

**Производитель:**  
**ПРОМЕТ СТИЛ ЕАО**






# LIBERTY GALATI S.A. - Romania

1035  
CE03006, CE03013-07-01, GA, V007  
CE03016, CE03013-07-01, GA, V007  
CE03027, CE03013-07-01, GA, V007



CUSTOMER / CLIENT : Marinier International SA  
PRODUCT / PRODUCT : HOT ROLLED HEAVY PLATES  
STEEL GRADE/MARCA CETEL: S235JR+N  
NORM / STANDARD : EN10025-2:2019

INSPECTION CERTIFICATE 20719379  
ACCORDING TO : EN 10204/2004/3.1  
DATE : 04.10.2022

ORDER / COMANDA : 902073/50085053  
DISPATCH / AVIZ EXEDITE : 700165137  
WAGON / ID TRANSPORT : NR 1203 (EX.30110)  
TRUCKING NO. :  
P.O.NO. : 2

TOTAL NUMBER OF PIECES: 158 / TOTAL WEIGHT: 199.792,00 KG

| NO  | PLATE | HEAT NO | DIMENSIONS      | PC | TEST NO | WEIGHT | UTS | YTS | LO | EI |
|-----|-------|---------|-----------------|----|---------|--------|-----|-----|----|----|
| 40  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 41  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 42  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 43  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 44  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 45  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 46  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 47  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 48  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 49  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 50  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 51  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 52  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 53  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 54  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 55  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 56  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 57  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 58  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 59  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 60  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 61  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 62  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 63  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 64  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 65  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 66  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 67  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 68  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 69  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 70  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 71  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 72  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 73  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 74  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 75  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 76  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 77  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 78  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 79  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 80  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 81  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 82  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 83  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 84  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 85  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 86  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 87  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 88  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 89  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 90  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 91  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 92  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 93  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 94  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 95  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 96  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 97  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 98  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 99  | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 100 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 101 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 102 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 103 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 104 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 105 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 106 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 107 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 108 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 109 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 110 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 111 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 112 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 113 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 114 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 115 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 116 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 117 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 118 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 119 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 120 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 121 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 122 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 123 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 124 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 125 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 126 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 127 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 128 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 129 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 130 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 131 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 132 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 133 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 134 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 135 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 136 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 137 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |
| 138 | 1     | 1       | 10,00x2000x6000 | 1  | 1       | 1      | 1   | 1   | 1  | 1  |

CHEMICAL COMPOSITION (%) - L = Heat, P = Product

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



## Публічне акціонерне товариство "Запорізький металургійний комбінат "Запоріжсталь"

Public Joint Stock Company "Integrated Iron and Steel Works "Zaporizhstal"

Україна 69008 м Запоріжжя Приватне шосе, 72

факс +38 (061) 213-18-58

UKRAINE 69008 Zaporizhzhya 72, Pryvne Shose

Fax +38 (061) 213-18-58

СЕРТИФІКАТ ЯКОСТІ / QUALITY CERTIFICATE № 504401

від / date 21.02.2023

Отримувач / consignee

Замовлення комбінату № / Manufacturer's works order

Філія ТОВ "МЕТІНВЕСТ-СМЦ" у м.Дніпро

52012 с. Партизанське вул.Заводська, 6.25

станція призначення НИЖНЬОДІПРОВСЬК-ПРИСТАПЬ (ПРИДІЗАЛ)

2023 972000-0110

Контракт № / Contract

МЗК-1327342/10/20/СМЦ-С

від/ date 06.10.2020

Вид свідчення про випробування

Type of inspection document

LN 10204/3 1

Вагон № / Freight car: 53574984

Вид напакети. / Type of packages

пачки / packs

Кількість місць/Number of packages

8

Найменування та код товару / Description and code of goods

97200

Прокат тонколистовий з вуглецевої сталі звичайної якості

ІД на продукцію, хіміклад / Specification forms and record

ЛСТУ 2834-94(ГОСТ 16523-97)

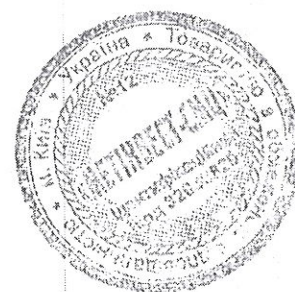
ЛСТУ 2651:2005/ГОСТ 380-2005

ЛСТУ 8540:2015

Маркування продукції ГАРЯЧЕКАТАНИЙ ЛИСТ / HOT ROLLED STEEL SHEETS

## Результати випробувань / Result of trial

| № п/п<br>Item № | № пачки<br>Pack № | № партії<br>Batch № | Марка<br>Grade | Категорія<br>Category | Група<br>мцності<br>Group of<br>strength | Розміри мм<br>Dimensions, mm |                  |                   | Кількість<br>товару<br>Number<br>of<br>goods | С<br>р | Маса, т<br>Mass, tons |                   |              |
|-----------------|-------------------|---------------------|----------------|-----------------------|------------------------------------------|------------------------------|------------------|-------------------|----------------------------------------------|--------|-----------------------|-------------------|--------------|
|                 |                   |                     |                |                       |                                          | Товщина<br>Thickness         | Ширинна<br>Width | Довжина<br>Length |                                              |        | брутто<br>gross       | брутто2<br>gross2 | нетто<br>net |
| 1               | 130428            | 2450-1              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 134                                          | 1      | 6,615                 |                   | 6,600        |
| 2               | 130428            | 2450-2              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 144                                          | 1      | 7,165                 |                   | 7,150        |
| 3               | 130428            | 2450-3              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 134                                          | 1      | 6,600                 |                   | 6,585        |
| 4               | 130428            | 2450-4              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 140                                          | 1      | 6,970                 |                   | 6,955        |
| 5               | 130428            | 2450-5              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 134                                          | 1      | 6,580                 |                   | 6,565        |
| 6               | 130428            | 2450-6              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 152                                          | 1      | 7,555                 |                   | 7,540        |
| 7               | 130428            | 2450-7              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 139                                          | 1      | 7,016                 |                   | 6,995        |
| 8               | 130428            | 2450-8              | СТЗПС          | 5                     | OK360B                                   | 2,00                         | 1250             | 2500              | 128                                          | 1      | 6,530                 |                   | 6,515        |
| Разом:          |                   |                     |                |                       |                                          |                              |                  |                   |                                              |        | 55,025                |                   | 54,905       |


Даними цього сертифікату підтверджується, що продукція випробувана і відповідає стандартам якості, що діють в Україні, технічним умовам і погодженим умовам замовлення контракту.  
It is hereby certified that the quality of goods mentioned in this shipping document is in conformity with the standards in the Ukraine, specifications and goods may be exported.

[illegible]



Україна 69008 м.Запоріжжя Південне шосе 72  
телефон +38 (061) 213-18-58

UKRAINE 69008 Zaporizhzhya 72, Pivdenne Shose

Fax +38 (061) 213-18-58

СЕРТИФІКАТ ЯКОСТІ / QUALITY CERTIFICATE № 508851

від / date 29.03.2023

Одержувач / consignee

Замовлення комбінату № / Manufacturer's works order

ДІЛЛЯ ТОВ "МЕТІНВЕСТ-СМЦ" Західна Україна  
6020 м. Тернопіль вул.Поліська, б.11  
призначення ТЕРНОПІЛЬ (Льв.ЗАЛ.)

2023 971000-0096

Контракт № / Contract

МЗК-1327342/10/20/СМЦ-С

від/date 06.10.2020

Вид свідчення про випробування

Type of inspection document

EN 10204/3.1

агон № / Freight car: 62064480

Вид вантажмісць / Type of packages пачки / packs

Кількість місць/Number of packages 10

Найменування та код товару / Description and code of goods

7100 Прокат товстолистовий г/к з вуглицевої сталі звичайної  
якості

НД на продукцію; хімсклад / Specification forms and record

ДСТУ 8803:2018

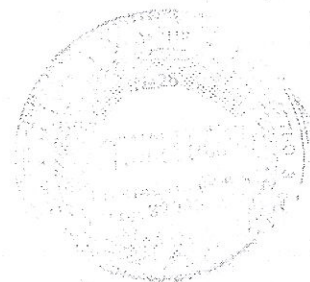
ДСТУ 2651:2005/ГОСТ 380-2005

ДСТУ 8540:2015

Маркування продукції: ГАРЯЧЕКАТАНИЙ ЛИСТ / HOT ROLLED STEEL SHEETS

## Результати випробувань / Result of trial

| Item № | № плавки<br>Heat № | № партії<br>Batch № | Марка<br>Grade | Категорія<br>Category | Група<br>міцності<br>Group of<br>strength | Розміри, мм<br>Dimensions, mm |                 |                   | Кількість<br>товару<br>Number<br>of<br>goods | С<br>о<br>р<br>т | Маса, т<br>Mass, tons |                   |              |
|--------|--------------------|---------------------|----------------|-----------------------|-------------------------------------------|-------------------------------|-----------------|-------------------|----------------------------------------------|------------------|-----------------------|-------------------|--------------|
|        |                    |                     |                |                       |                                           | Товщина<br>Thickness          | Ширина<br>Width | Довжина<br>Length |                                              |                  | брутто<br>gross       | брутто2<br>gross2 | нетто<br>net |
| 1      | 623066             | 21104-6             | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 17                                           | 1                | 5,975                 |                   | 5,960        |
| 2      | 623066             | 21104-11            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 22                                           | 1                | 7,705                 |                   | 7,690        |
| 3      | 623066             | 21104-12            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 21                                           | 1                | 7,375                 |                   | 7,360        |
| 4      | 623066             | 21104-13            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 22                                           | 1                | 7,695                 |                   | 7,680        |
| 5      | 623066             | 21104-14            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 21                                           | 1                | 7,350                 |                   | 7,335        |
| 6      | 623066             | 21104-8             | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 17                                           | 1                | 6,025                 |                   | 6,010        |
| 7      | 623066             | 21104-15            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 22                                           | 1                | 7,745                 |                   | 7,730        |
| 8      | 623066             | 21104-16            | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 20                                           | 1                | 7,035                 |                   | 7,020        |
| 9      | 813023             | 21143-3             | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 22                                           | 1                | 7,780                 |                   | 7,765        |
| 10     | 813023             | 21143-4             | СТЗПС          | 5                     |                                           | 5,00                          | 1500            | 6000              | 11                                           | 1                | 3,890                 |                   | 3,875        |
| Разом: |                    |                     |                |                       |                                           |                               |                 |                   |                                              |                  | 68,575                |                   | 68,425       |



Цим сертифікатом підтверджується, що продукція випробувана і відповідає стандартам якості, діючим в Україні, технічним умовам і погодженим умовам замовлення контракту  
 is hereby certified that the quality of goods mentioned in this shipping document is in conformity with the standards in the Ukraine, specifications and goods may be expofed.



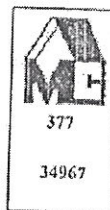
**ЕВРАЗ**

ЕВРАЗ ЗСМК

ЭР 058486

Система Менеджмента качества  
сертифицирована в Бюро Веритас  
Сертификат по ISO 9001:2015  
Сертификат № RU228098Q-U

# ДОКУМЕНТ О КАЧЕСТВЕН1961727 (стан 252)



Лист 1

Грузоотправитель:

АО "ЕВРАЗ Объединенный  
Западно-Сибирский  
металлургический комбинат"

Грузополучатель: АО "Металлоторг" (Код: 6071)

Станция назначения: ЭЛЕКТРОУГЛИ

Наименование продукции:

ГОСТ 34028-2016 - ПРОКАТ АРМАТУРНЫЙ ДЛЯ ЖЕЛЕЗОБЕТОННЫХ КОНСТРУКЦИЙ

| Номер вагона<br>Номер прицепа | Код<br>станции | Дата<br>отгрузки | Номер<br>акреди-<br>тыва | Год исполнения<br>Номер заказа<br>Номер фактуры | Кв.<br>зав. | Бригада<br>отгруз. | Таб. N<br>контр. | Призн.<br>замен | ЛВП | Пере-<br>адрес | Кол-во<br>мест | Вид грузовых мест |
|-------------------------------|----------------|------------------|--------------------------|-------------------------------------------------|-------------|--------------------|------------------|-----------------|-----|----------------|----------------|-------------------|
| 053475307                     | 230600         | 25.11.2019       |                          | 19, 4500632887<br>83319872                      | 4           | 4                  | 33488            |                 | 01  |                | 16             | СВЯЗКИ            |

| N<br>п/п | Ном.<br>поз. | НД         | Номер<br>плавки | Марка<br>стали | Тех.<br>треб. | Профиль    | Форма<br>проф | Кл.<br>точн | Точн<br>по овал | Размер, мм |       |   |    | Тип<br>длины | Группа<br>предел<br>откл | С<br>орт | Кол.<br>мест | Вес<br>(тн) |
|----------|--------------|------------|-----------------|----------------|---------------|------------|---------------|-------------|-----------------|------------|-------|---|----|--------------|--------------------------|----------|--------------|-------------|
|          |              |            |                 |                |               |            |               |             |                 | A          | B     | C | D  |              |                          |          |              |             |
| 01       | 001          | 34020-2016 | 496477          |                | A240          | АРМ.ПРОКАТ |               |             |                 | 20.00      | 11700 |   | МД |              |                          | 1        | 16           | 67.020      |

Итого: 16 67.020

Вес брутто: 67.180

МАЛОТОННАЖНЫЕ ПАЧКИ 5 ТОНН - 01; ХИМ.СОСТАВ СООТВЕТСТВУЕТ ТАБЛ №4 ПО ГОСТ 34028-2016 - 01

## Условия поставки БУ-2

| N<br>п/п | Номер<br>плавки | Ном<br>парт | ХИМИЧЕСКИЙ СОСТАВ, %<br>(название элементов) |          |          |        |        |          |          |          |    |                     | МЕХАНИЧЕСКИЕ СВОЙСТВА |                 |                 |                     |                     |               | Технол.испыт       |      | Относи-<br>тельная<br>площадь<br>смятия<br>попереч<br>ребер<br>fR | Условия<br>проведе<br>испытат |
|----------|-----------------|-------------|----------------------------------------------|----------|----------|--------|--------|----------|----------|----------|----|---------------------|-----------------------|-----------------|-----------------|---------------------|---------------------|---------------|--------------------|------|-------------------------------------------------------------------|-------------------------------|
|          |                 |             | С<br>N                                       | SI<br>Al | Mn<br>Ti | S<br>W | P<br>V | Cr<br>Mo | Ni<br>Nb | Cu<br>Cz | As | $\sigma_T$<br>Н/мм2 | $\sigma_B$            | $\delta_5$<br>% | $\delta_P$<br>% | $\delta_{max}$<br>% | $\sigma_D/\sigma_T$ | Холп.<br>изг. | Изгиб с<br>разгиб. |      |                                                                   |                               |
| 01       | 496477          |             |                                              |          |          |        |        |          |          |          |    |                     |                       |                 |                 |                     |                     |               |                    | 0.20 | 0.07                                                              | 0.44                          |
|          |                 |             | 0.007                                        |          |          |        |        |          |          |          |    |                     |                       |                 |                 |                     |                     |               |                    |      |                                                                   |                               |

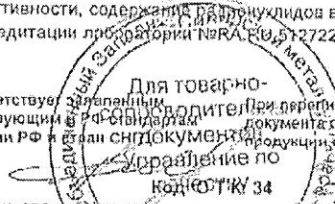


На основании результатов контроля радиоактивности, содержания радиоактивных элементов в металле соответствует ГН 2.6.1.2159-07, НРБ-99-2009, СП 2.6.1.2612-10. Аттестат аккредитации лаборатории N RA.RU.512722 от 12.11.2016г.

Указанная в документе о качестве продукция соответствует требованиям, установленным в контракте (договоре на поставку продукции) действующим в РФ стандартам и техническим условиям. Действителен на территории РФ и в странах СНГ. Документ недействителен за пределами территории РФ. Для товарно-заказных документов, касающихся вопросов количества и качества сырья, сырья, по вопросам претензий на количество и качество продукции, обращаться по адресу: [www.to-evraz.com](http://www.to-evraz.com), раздел Претензии.

(\*) - Хим. анализ по ковшевой пробе  
(S) - Хим. анализ в готовом сорте

При определении массы продукции в связках «по трафарету» проворачивание на весах ВТТВС-10П, с абсолютной погрешностью до 5гн +/- 10кг, от 5гн до 15гн +/- 20кг. Предельное отклонение веса при перевесе у клиента, допускается в пределах







## СЕРТИФИКАТ КАЧЕСТВА № 11931

ГОСТ 7566-2018 3.1

|                                                                                                                                                 |                                                                                                                                                                                                                     |                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Грузоотправитель<br>Россия, Публичное акционерное общество "Ачинский<br>металлургический завод"<br>456010, Челябинская обл. г. Аши, ул. Мира, 9 | Грузополучатель: 309540, г. СТАРЫЙ ОСКОЛ,<br>СТАНЦИЯ КОТЕЛ, ПРОМУЗЕЛ, ПЛОЩАДКА<br>"СКЛАДСКАЯ", ПРОЕЗД М-3, СТРОЕНИЕ 3, ООО<br>"БЕНТОПРОМ" (ДЛЯ АО ЕВРАЗ МЕТАЛЛ ИНПРОМ)<br>ОКПО 73237129<br>Вагон/Платформа 60500303 | НТД на сортамент: ГОСТ 19903-2015<br>НТД на металлопродукцию: ГОСТ 19281-2014<br>НТД на химия: ГОСТ 19281-2014<br>Дата выдачи сертификата: 08.10.2019г<br>Приказ № ПЭС-39012 |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Прокат толстолистовой горячекатаный из низколегированной стали

Лист 1 Кол-во листов 1

| №<br>п/п | Марка стали,<br>категория | №<br>Плавки | №<br>Партии | Размеры, мм |        |       | Кол-во<br>листов | Масса, т<br>"ТМ" | Масса, т<br>"ТМ"<br>одного<br>листа | Форма<br>раскроя | Точность<br>прокатки | Плоскостность | Вид<br>кромки |
|----------|---------------------------|-------------|-------------|-------------|--------|-------|------------------|------------------|-------------------------------------|------------------|----------------------|---------------|---------------|
|          |                           |             |             | толщина     | ширина | длина |                  |                  |                                     |                  |                      |               |               |
| 1        | 09Г2С, 12 ГС              | 194635      | 17823       | 20,0        | 1500   | 6000  | 12               | 17,136           | 1,428                               | IV               | Б                    | ПУ            | О             |
|          |                           |             |             |             |        |       | Итого:           | 17,136           |                                     |                  |                      |               |               |
| 2        | 09Г2С, 12 ГС              | 194634      | 17818       | 25,0        | 1500   | 6000  | 16               | 28,560           | 1,785                               | IV               | Б                    | ПУ            | О             |
|          |                           |             |             |             |        |       | Итого:           | 28,560           |                                     |                  |                      |               |               |
| 3        | 09Г2С, 12 ГС              | 194635      | 17824       | 40,0        | 1500   | 6000  | 8                | 22,840           | 2,855                               | IV               | Б                    | ПУ            | О             |
|          |                           |             |             |             |        |       | Итого:           | 22,840           |                                     |                  |                      |               |               |
|          |                           |             |             |             |        |       | Всего:           | 68,536           |                                     |                  |                      |               |               |

| №<br>п/п | №<br>Плавки | Химический состав х 100 |     |    |     |     |    |    |    |     |     |     |     |     |     |     |
|----------|-------------|-------------------------|-----|----|-----|-----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
|          |             | C                       | Mn  | Si | P   | S   | Cr | Ni | Cu | As  | N   | Al  | Ti  | V   | Ca  | Ceq |
| 1,3      | 194635      | 11                      | 134 | 53 | 1,2 | 0,5 | 7  | 15 | 17 | 0,5 | 0,8 | 1,1 | 0,2 | 0,5 | 0,2 | 39  |
| 2        | 194634      | 9                       | 133 | 52 | 1,4 | 0,6 | 11 | 17 | 20 | 0,6 | 0,9 | 1,5 | 0,2 | 0,4 | 0,2 | 38  |

| № п/п | № Партии | Временное сопротивление, Н/мм2 | Предел текучести, Н/мм2 | Относительное удлинение, % | Механические свойства                                 |                                       |        | Класс прочности |
|-------|----------|--------------------------------|-------------------------|----------------------------|-------------------------------------------------------|---------------------------------------|--------|-----------------|
|       |          |                                |                         |                            | Ударная вязкость после механического старения, Дж/см2 | Ударная вязкость КСЧ при -40С, Дж/см2 | Испыб  |                 |
| 1     | 17823    | 450; 455                       | 300; 305                | 32; 33                     | 54; 59; 62; 66                                        | 51; 57; 59; 63                        | уд; уд | 295             |
| 2     | 17818    | 460; 466                       | 310; 315                | 31; 32                     | 55; 61; 64; 68                                        | 67; 73; 77; 81                        | уд; уд | 295             |
| 3     | 17824    | 440; 445                       | 295; 300                | 32; 33                     | 67; 74; 78; 82                                        | 61; 67; 70; 74                        | уд; уд | 295             |

Примечание: «ТМ»-поставка по теоретической массе; «ФМ»-поставка по фактической массе; «ГС»- гарантия свариваемости. Указанная в сертификате продукция соответствует действующим в РФ стандартам. При переписке по вопросам качества обращаться на присвоенный номер сертификата качества



Контроль ОТК

Чистякова О.А.

Ст. контролер ОТК

Абдрашитов Р.М.



MILL'S CERTIFICATE OF ANALYSIS

THE INSPECTION CERTIFICATE ACCORDING TO EN10204 (2004) 3.1 CONFORMING TO THE DEFINITION IN EN 10169

7.08.2019

|                      |                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------|
| CERTIFICATE NO       | 2019-568                                                                                                            |
| DESCRIPTION OF GOODS | PRIME, NEWLY PRODUCED HOT ROLLED STEEL MERCHANT BARS AND PROFILES                                                   |
| QUALITY              | S275JR                                                                                                              |
| PRODUCT NAME         | HOT ROLLED STEEL FLAT BARS<br>HOT ROLLED STEEL CHANNELS<br>HOT ROLLED STEEL I BEAMS<br>HOT ROLLED STEEL SQUARE BARS |

|                          |                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------|
| NAME OF THE MANUFACTURER | MESCIER DEMIR CEKIR SAN. VE TIC. AS YESIL MAHALLE SANAYI BOLGESI NO:50 78000, KARABUK, TURKEY |
| NAME OF THE EXPORTER     | MESCIER DIS TICARET LTD STI YESIL MAH SANAYI BOLGESI/78200 KARABUK/TURKEY                     |
| CUSTOMER                 | SC MARON GALATI SA DRUMUL DE CENTURA, NR. 59 GALATI ROMANIA                                   |
| VESSEL                   | IMV ASMAR                                                                                     |
| INVOICE NO               | MD17019000300085-2                                                                            |
| ORDER NO                 | MEST190568                                                                                    |
| ORIGIN OF GOODS: TURKEY. |                                                                                               |

PAGE 1 of 1

MECHANICAL PROPERTIES

CHEMICAL COMPOSITION

| PRODUCT ANALYSIS |         |            |                 |            |             |            |               |                |         |            |                |               |                  |                  |                  |       |      |      |       |       |       |       |       |        |       |        |        |        |        |                         |      |
|------------------|---------|------------|-----------------|------------|-------------|------------|---------------|----------------|---------|------------|----------------|---------------|------------------|------------------|------------------|-------|------|------|-------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|-------------------------|------|
| TEST PIECES NO   | HEAT NO | SIZE IN MM | QUANTITY (Tons) | PCS (BNDL) | LENGTH (MM) | WORK ORDER | TENSION TEST  |                |         | ELONGATION | CHARPY TEST(1) | BEND TEST (2) | RE-BEND TEST (2) | FATIGUE TEST (4) | PRODUCT ANALYSIS |       |      |      |       |       |       |       |       |        |       |        |        |        |        |                         |      |
|                  |         |            |                 |            |             |            | YIELD S. (Re) | TENSILE S (Rm) | Rm / Re |            |                |               |                  |                  | C                | SI    | Mn   | P    | S     | Ti    | Cu    | Ni    | Cr    | Mo     | V     | Al     | W      | Nb     | N      | EQUIVALENT CARBON (CEV) |      |
|                  |         |            |                 |            |             |            |               |                |         |            |                |               |                  |                  |                  |       |      |      |       |       |       |       |       |        |       |        |        |        |        |                         | mm2  |
| 1                | 240696  | 25X3.00    | 6.00            | 3          | 6.00        | -          | L             | 306.0          | 445.0   | 1.45       | 29.5           | -             | -                | -                | -                | 0.135 | 0.26 | 0.91 | 0.015 | 0.025 | 0.011 | 0.049 | 0.076 | 0.0018 | 0.019 | 0.0043 | 0.0037 | 0.0044 | 0.037  | 98.59                   | 0.30 |
| 2                | 21451   | 30X6.00    | 3.96            | 2          | 6.00        | -          | L             | 285.0          | 426.0   | 1.49       | 28.5           | -             | -                | -                | -                | 0.16  | 0.22 | 0.65 | 0.013 | 0.031 | 0.014 | 0.062 | 0.04  | 0.00   | 0.008 | 0.0028 | 0.0037 | 0.007  | 98.750 | 0.28                    |      |
| 3                | 821517  | 60X15.00   | 4.00            | 2          | 6.00        | -          | L             | 290.0          | 435.0   | 1.51       | 29.9           | -             | -                | -                | -                | 0.19  | 0.24 | 0.74 | 0.012 | 0.010 | 0.057 | 0.039 | 0.03  | 0.00   | 0.012 | 0.0017 | 0.0078 | 0.005  | 0.016  | 98.840                  | 0.32 |
| 4                | 922842  | 80X15.00   | 4.00            | 2          | 6.00        | -          | L             | 311.0          | 448.0   | 1.44       | 30.0           | -             | -                | -                | -                | 0.18  | 0.19 | 0.82 | 0.022 | 0.026 | 0.011 | 0.05  | 0.06  | 0.00   | 0.019 | 0.0043 | 0.0027 | 0.004  | 0.036  | 98.580                  | 0.33 |
| 5                | 613060  | 150X6.00   | 6.18            | 3          | 6.00        | -          | L             | 325.0          | 465.0   | 1.43       | 28.7           | -             | -                | -                | -                | 0.19  | 0.13 | 0.95 | 0.032 | 0.029 | 0.011 | 0.058 | 0.02  | 0.00   | 0.014 | 0.0041 | 0.0044 | 0.002  | 0.038  | 99.500                  | 0.36 |
| 6                | 922849  | 150X6.00   | 6.00            | 3          | 6.00        | -          | L             | 328.0          | 469.0   | 1.43       | 25.5           | -             | -                | -                | -                | 0.17  | 0.39 | 0.73 | 0.015 | 0.016 | 0.012 | 0.048 | 0.06  | 0.00   | 0.007 | 0.0013 | 0.0069 | 0.004  | 0.038  | 99.280                  | 0.30 |
| 7                | 251456  | 8X9.00     | 3.88            | 2          | 6.00        | -          | L             | 295.0          | 433.0   | 1.47       | 30.4           | -             | -                | -                | -                | 0.16  | 0.30 | 0.02 | 0.027 | 0.025 | 0.097 | 0.047 | 0.03  | 0.00   | 0.013 | 0.0043 | 0.0060 | 0.002  | 0.039  | 99.140                  | 0.32 |
| 8                | 922883  | 25X25.00   | 17.00           | 9          | 6.00        | -          | L             | 286.0          | 426.0   | 1.49       | 30.5           | -             | -                | -                | -                | 0.19  | 0.22 | 0.69 | 0.034 | 0.025 | 0.073 | 0.031 | 0.03  | 0.00   | 0.014 | 0.0029 | 0.0056 | 0.001  | 0.013  | 98.910                  | 0.23 |
| 5                | 1501146 | 30X30X.00  | 13.52           | 7          | 6.00        | -          | L             | 316.0          | 465.0   | 1.47       | 31.2           | -             | -                | -                | -                | 0.14  | 0.15 | 0.75 | 0.017 | 0.025 | 0.073 | 0.031 | 0.03  | 0.00   | 0.014 | 0.0029 | 0.0063 | 0.001  | 0.013  | 98.070                  | 0.28 |
| 10               | 921092  | 60X80.00   | 14.30           | 7          | 6.00        | -          | L             | 321.0          | 477.0   | 1.49       | 30.6           | -             | -                | -                | -                | 0.19  | 0.30 | 0.93 | 0.029 | 0.026 | 0.058 | 0.034 | 0.04  | 0.00   | 0.014 | 0.0027 | 0.0063 | 0.006  | 0.015  | 98.590                  | 0.35 |
| 11               | 251486  | DPN 65.00  | 40.22           | 20         | 6.00        | -          | L             | 305.0          | 448.0   | 1.47       | 27.6           | -             | -                | -                | -                | 0.15  | 0.21 | 0.69 | 0.017 | 0.016 | 0.055 | 0.026 | 0.06  | 0.00   | 0.019 | 0.0028 | 0.0061 | 0.005  | 0.012  | 98.900                  | 0.27 |
| 12               | 191330  | UPN 80.00  | 20.01           | 5          | 12.30       | -          | L             | 300.0          | 436.0   | 1.45       | 29.6           | -             | -                | -                | -                | 0.19  | 0.20 | 0.93 | 0.029 | 0.026 | 0.068 | 0.019 | 0.05  | 0.00   | 0.017 | 0.0023 | 0.0047 | 0.004  | 0.019  | 98.600                  | 0.33 |
| 13               | 1901198 | UPN 100.00 | 100.01          | 25         | 12.00       | -          | L             | 296.0          | 424.0   | 1.43       | 28.5           | -             | -                | -                | -                | 0.19  | 0.20 | 0.93 | 0.029 | 0.026 | 0.068 | 0.019 | 0.05  | 0.00   | 0.017 | 0.0023 | 0.0047 | 0.004  | 0.019  | 98.600                  | 0.33 |
| 14               | 190109  | UPN 100.00 | 20.26           | 10         | 6.00        | -          | L             | 299.0          | 443.0   | 1.50       | 29.6           | -             | -                | -                | -                | 0.12  | 0.27 | 0.68 | 0.010 | 0.029 | 0.086 | 0.03  | 0.03  | 0.00   | 0.024 | 0.0035 | 0.0061 | 0.007  | 0.019  | 98.600                  | 0.24 |
| 15               | 190988  | UPN 120.00 | 18.92           | 5          | 12.00       | -          | L             | 314.0          | 485.0   | 1.41       | 30.5           | -             | -                | -                | -                | 0.14  | 0.16 | 0.84 | 0.022 | 0.024 | 0.034 | 0.013 | 0.03  | 0.00   | 0.022 | 0.0078 | 0.0081 | 0.007  | 0.0124 | 98.000                  | 0.30 |
| 16               | 240980  | UPN 140.00 | 19.30           | 5          | 12.00       | -          | L             | 324.0          | 489.0   | 1.45       | 31.6           | -             | -                | -                | -                | 0.15  | 0.22 | 0.83 | 0.023 | 0.028 | 0.059 | 0.038 | 0.03  | 0.00   | 0.013 | 0.004  | 0.0066 | 0.007  | 0.018  | 98.510                  | 0.29 |
| 17               | 251433  | IPN 80.00  | 9.80            | 5          | 6.00        | -          | L             | 310.0          | 449.0   | 1.41       | 28.4           | -             | -                | -                | -                | 0.13  | 0.18 | 0.89 | 0.019 | 0.024 | 0.071 | 0.059 | 0.02  | 0.00   | 0.024 | 0.0039 | 0.0050 | 0.007  | 0.023  | 98.500                  | 0.29 |

