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| LLC «TOSHKENT METALLURGIYA ZAVODI» |
| APPROVED by:Chief Engineer\_\_\_\_\_\_\_\_\_\_\_ V. A. Diakonov«\_\_\_\_\_» \_\_\_\_\_\_\_\_ 2023. |
| TECHNICAL SPECIFICATION NO. 007for the supply of raw materials |
| **Customer** | LLC “TOSHKENT METALLURGIYA ZAVODI” |
| **Address**  | 4P21, Tashkent bypass road, Yangihayot district, Tashkent, the Republic of Uzbekistan. |
| **Contact** | Tel.: +998 55 503 88 11 <http://tashkentsteel.uz> |
| **Product name** | CHROMATE-FREE POLYESTER PRIMER |
| **Standard** | Supplier’s regulatory documents |
| **Product Designation** | The primer is designed for painting the galvanized strip on the face and back side on the coater of the color coating line (CCL). |
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| **Requirements for the paints and varnishes** |

| **Сharacteristic name** | **Indicator** |
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| Drying temperature, °C | 224-243 |
| Dwell time, sec. | ≥25 |
| Specific viscosity according to GOST 8420-2022 at 20 °C, s | 60 to 80 |
| Degree of grinding according to GOST31973-2013, mkm | no more than 25 |
| Density of liquid paint (paintwork)according to GOST 31992.1-2012 (ISO 2811-1:2011), g/cm3 | from 1.05 to 1.49 |
| Mass fraction of non-volatile (solid) substancesO'z DSt ISO 3251:2019 (ISO 3251:2019, IDT), % | at least 50 |
| Suitable solvent | Solvesso 150 |

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| **Requirements for the paint coating** | **Test methods according to GOST 34180-2017 with amendments 1:**- Appearance: ***uniformly painted surface (surface defects are not allowed);***- Dry film thickness, mkm: ***front side - 5-10,******back side – 4-7;***- Adhesion after stretching, %:***0***;- Bending adhesion at 1800, ***no delamination at 0T***- Abrasion resistance (IEC): ***at least 10 double passes.*** |
| **Characteristics of the metal base** | CCL feedstock features:- cold-rolled galvanized strip, skin-passed;- thickness, mm: from 0.29 to 0.7;- width, mm: from 800 to 1250;- zinc coating - grade 60 to 275;- surface with conversion coating Cr+6, Cr+3;- strip yield strength, MPa: max. 510;- strip time resistance, MPa: max. 550. |
| **Additional requirements** | - Paintwork materials must be supplied ready for use on polymer coating lines;- in case of significant changes in the components of the formulation, raw materials, the paintwork manufacturer must inform in advance. In this case, batches of paintwork materials shall be labeled as "experimental";- each batch of paintwork materials shall be subjected to incoming inspection tests. The parameters of the paintwork materials to be checked during the incoming inspection are determined according to the approved technical specification;- the manufacturer shall guarantee that all raw materials used for the production of paintwork materials are authorized for use in the Republic of Uzbekistan, have safety data sheets and quality certificates;- coatings on the basis of paintwork materials should be suitable for interior decoration products and for manufacturing of facade parts of houses and buildings (panels, siding, metal tiles, etc.);- the supplier shall provide data on recommended solvent grades for viscosity correction of the paintwork materials as part of the offer. |
| **Main technological modes** | Speed modes:- process, max, m/min: 160;- filling, max, m/min: 210.Soil drying furnace:- total length of the furnace, m 50;- number of zones 5;- length of each zone, m: 10.- fuel: natural gas.Temperature modes:- maximum temperature of the atmosphere of the soil drying furnace, °С: 400;- peak strip temperature (RTM), °С: 216-232.Strip cooling after the drying furnace: water cooling (spraying).Length of water-cooling section, m: 2.Strip temperature at the outlet after the cooling section, °С: not more than 45.Strip drying is carried out in the air blowing unit at ambient temperature. |
| **Packaging requirements** | The products shall be delivered in original containers (packaging) provided by the manufacturer (barrels, steel drums - with internal chemically resistant protective coating).Paints and varnishes shall be packed in such a way as to exclude their damage and/or destruction during loading, transportation, unloading, storage and unpacking at the Consumer. Additional packaging requirements may be stipulated in the Application-specification. |
| **Marking requirements** | Labeling shall contain the following information:- name of the manufacturing company;- name and brand of paintwork materials;- batch number;- date of manufacture;- net/gross weight;- hazard class;- storage conditions, protection measures, warning inscriptions and hazard markings, disposal method.Other data at the discretion of the supplier. |
| **Documentation requirements** | Certificate/quality passport for each batch. Technical conditions or standards of the organization with technical requirements for the products.Safety passport for the products.Manufacturer's recommendations/instructions on use, storage, handling of the Goods.All documentation shall be in Russian and/or English. |
| **Guaranteed storage life** | The manufacturer (supplier) is obliged to guarantee the quality of incoming batches of products in accordance with the requirements of this technical specification.Guaranteed shelf life of the products: not less than 6 months from the date of production under observance of storage and delivery conditions |
| **Sample lot volume** | For laboratory testing (if necessary): 0.5 kg.For industrial tests: not less than 400 kg (to be additionally agreed upon when placing an order).With each supplied batch of paintwork materials for incoming inspection the accompanying coloring sheet with the results of testing of paintwork materials at the manufacturing plant shall be provided. |

Designed by:

Deputy Chief Technologist Sh. R. Fazilov

Approved by:

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Quality director T.V. Dolgopolova

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