**Application 3 Polypropylene powder and additives dosing system (analog)**

Technical specifications

1. Capacity 10-11.5 t/h of polypropylene granulate, capacity regulation 50 - 100 %.

| **№** | **Description** | **Data** |
| --- | --- | --- |
| 1 | Location: | In a heated building  +5ºС - +35ºС |
|  | average operating temperature |
| 5 | Category of premises for fire hazard |  |
|  | For the placement of the extruder | В 4, П II а |
|  | For the dosing system | Б, В II А - Т2 |
| 6 | Operating mode | continuous |
| 8 | Basic parameters: |  |
| 8.1 | Capacity t/h | 10-11,5 (for a melt index of 2-4 g/10 min) |
| 8.2 | Performance regulation, % | 50-100 |
| 8.3 | Flow rate of granulate melt, g/10 min | 0,2 - 50 |
| 8.4 | Granule size, mm | 2 - 5 |
| 8.5 | Built-in device for measuring the melt index | Yes |
| 8.6 | Raw materials | Polypropylene Powder |
| 8.7 | Flow rate of powder, g/10 min | 0,2 -25 |
| Granulometric distribution of powder particles:  less 0,063 мм  small 0,1-0,063 мм  middle-sized 0,2-0,4 мм  large 0,40-0,63 мм | 0,02 %  (1-5) %  (75-85) %  (10-15) % |
| 8.8 | Dosing system | **1)** |
| Polypropylene Powder Dispenser |  |
| Productivity, t/h | 1,5-15 |
| Number of additives | to 6 |
| Dispenser performance | (see table 1 below) |
| The content of one additive in the product, % | from 0,015 to 0,4 |
| The total content of additives in the product, % | 0,2 – 1,2 |
| Injection into the extruder in the form of a mixture with polypropylene powder | Yes |
| 8.9 | Liquid peroxide dosing system | Yes |
|  | Peroxide type | Trigonox 301 |
|  | Peroxide consumption, kg/h | 0,4-15 |
| 9 | Cooling medium  Pressure in the pressure manifold, kg/cm2 (abs.)  Pressure in the drain manifold, kg/cm2 (abs.)  Pressure collector temperature, 0C  Temperature in the drain manifold, 0C  Total hardness, mg/m3  Mass concentration of suspended solids, mg/dm3  рН | Recycled water  4,5-5,5  1,5-3,5  23  28  Not more than 3,4  Not more than 15  7 |
| 10 | Nitrogen Parameters  Pressure kg/cm2  Temperature, 0С  The presence of drip oil  The presence of mechanical impurities | 4,5-6,0  Ambient temperature (-40-+40)  no  no |
| 11 | Instrumentation and control system Air parameters  Pressure kg/cm2  Temperature, 0C  The presence of drip oil  The presence of mechanical impurities | 4,5-5,0  Ambient temperature (-40-+40)  no  no |
| 12 | Control panel | Local and remote on the central control panel  Display language - Russian |
| 13 | Main drive power supply |  |
| -The category of power supply according to the Rules of electrical installations | 1 category |
| - Voltage, kV | 10 |
| - Frequency, Hz  - Degree of protection | 50  IP-45 |
| 14 | Power supply for auxiliary drives |  |
| - Category of electricity supply according to the Rules of electrical installations | 1 category |
| - Voltage, kV | 380 |
| - Frequency, Hz  - Degree of protection | 50  IP-45 |
| 15 | Power supply of auxiliary instrumentation and control systems: |  |
| - Category of electricity supply according to the Rules of electrical installations | 1 category |
| - Voltage, kV | 220 |
| - Frequency, Hz  - Degree of protection | 50  IP-45 |
|  |  |

**1)** The liquid peroxide dosing system equipment should be placed in an outdoor block box outside the premises..

Table 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | Dispenser 1 | | Dispenser 2 | | Dispenser 3 | | Dispenser 4 | | Dispenser 5 | | Dispenser 6 | |
| Dispenser capacity kg/hour | | | min | max | min | max | min | max | min | max | min | max | min | max |
|  | | | 1 | 15 | 2,5 | 60 | 5 | 50 | 2,5 | 40 | 5 | 50 | 10 | 100 |
| Additives | Bulk density | Flowability | min | max | min | max | min | max | min | max | min | max | min | max |
|  | kg/m3 |  | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h | kg/h |
| AtmerTM 129 | 500 | poor |  |  |  |  |  |  |  |  |  |  |  |  |
| DynamarTM FX5911 | 500 | poor |  |  |  |  |  |  |  |  |  |  |  |  |
| HyciteTM 713 | 400-500 | poor | 1,3 | 6 |  |  |  |  |  |  |  |  |  |  |
| HyperformTM NPN-20E | 400-500 | poor |  |  |  |  |  |  | 2,5 | 12 |  |  |  |  |
| IrganoxTM B501W | 420-460 | poor |  |  |  |  | 10 | 24 |  |  |  |  |  |  |
| MilladTM NX8000 | 400-500 | poor |  |  |  |  |  |  | 5 | 30 |  |  |  |  |
| SyloblockTM 250H | 150-360 | poor |  |  |  |  | 17,5 | 42 |  |  |  |  |  |  |
| TrigonoxTM 301 20PP | 360 | good |  |  |  |  |  |  |  |  |  |  | 10 | 100 |
| IrganoxТМ РS802 | 450 | good |  |  |  |  |  |  |  |  | 14 | 34 |  |  |
| IrganoxТМ B225 | 530-630 | good |  |  | 10 | 48 |  |  |  |  |  |  |  |  |
| IrganoxТМ B215 | 530-630 | good |  |  | 7,6 | 19 |  |  |  |  |  |  |  |  |
| IrgafosТМ 168 | 480-570 | good |  |  |  |  |  |  |  |  |  |  |  |  |
| IrganoxТМ 1010 | 530-630 | good |  |  | 2,5 | 24 |  |  |  |  |  |  |  |  |
| Calcium Stearate | 220 | good | 2,5 | 12 |  |  |  |  |  |  |  |  |  |  |
| Erukamide CrodamideTM ER | 450 | poor |  |  |  |  | 12,5 | 42 |  |  |  |  |  |  |
| ChimassorbTM 119 | 300-500 | poor |  |  |  |  |  | 7,6 | 19 |  |  |  |  |  |
| Peroxide LUPEROX 802 PP 20 | 630 | good |  |  |  |  |  |  |  |  |  |  | 10 | 100 |

Completeness of delivery

2.1 Technical documentation to the extent necessary for the construction, installation, start-up and operation of the supplied complete extrusion line.

2.2 A set of equipment for preparing a mixture of 6 additives with PP powder, followed by introduction into an extrusion plant (see below the attached diagram and a list of equipment for a complete pelletizing line (analog)).

2.2.1 PP powder storage capacity of 25 m3.

2.2.2 Additive loading, storage and dosing system with 400 l flow bins, ventilation and filtration of exhaust air.

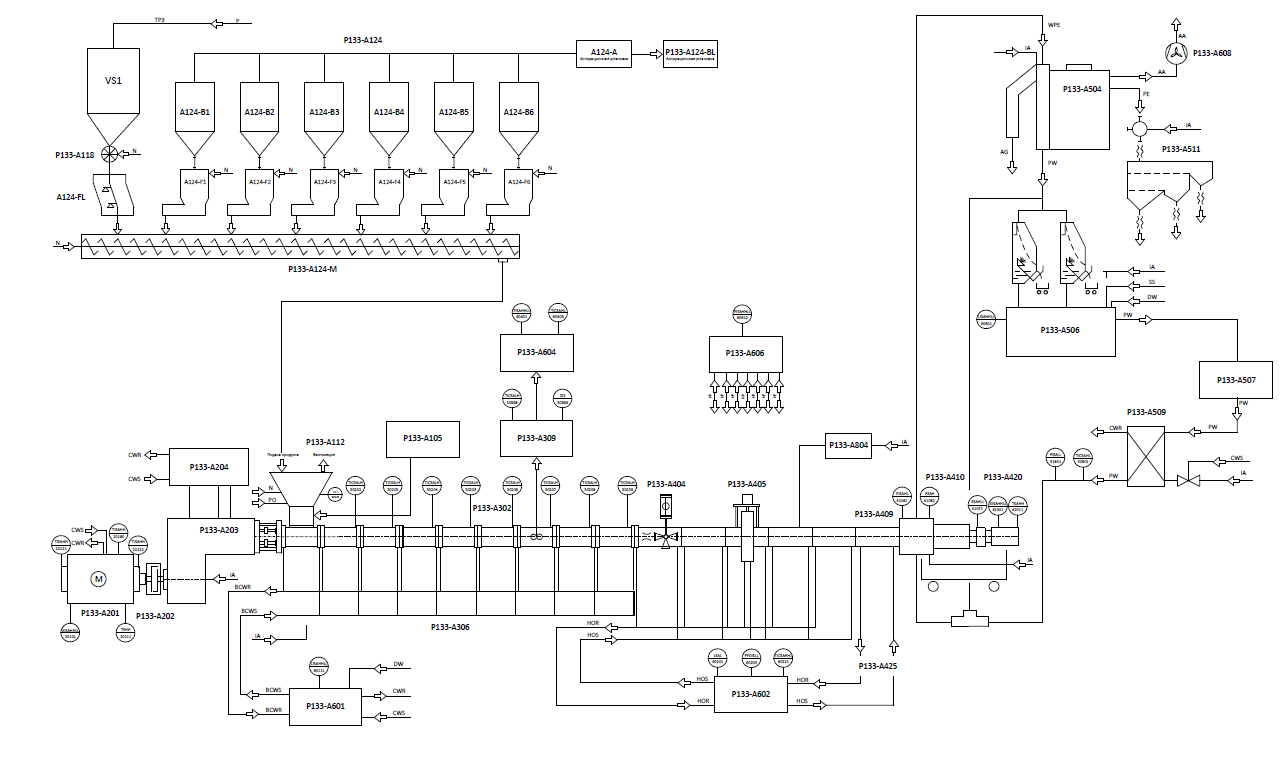
2.2.3 Horizontal screw conveyor for mixing polypropylene powder and additives before feeding to the extruder.

2.3 Liquid peroxide dosing system.

(The liquid peroxide dosing system equipment should be placed in an outdoor block box outside the premises. The volume of the liquid peroxide consumption tank should not exceed the daily consumption.).

2.4 A control and monitoring system with the possibility of control from a local control panel located near the extruder and from a central control panel.

Scheme and list of equipment for a complete pelletizing line (analog)



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Position | Name | Num. | Specification | Note |
| Р133-А105 | Peroxide Station | 1 |  |  |
| Р133-А112 | Feeding hopper | 1 |  |  |
| Р133-А118 | Sector Feeder | 1 |  |  |
| Р133-А124 | Dosing unit | 1 |  |  |
| Р133-А201 | Main drive | 1 |  |  |
| Р133-А202 | Desch coupling | 1 |  |  |
| Р133-А203 | Main drive gearbox | 1 |  |  |
| Р133-А204 | Gearbox lubrication system | 1 |  |  |
| Р133-А302 | The technological part | 1 |  |  |
| Р133-А306 | Water collector | 1 |  |  |
| Р133-А309 | Side degassing unit | 1 |  |  |
| Р133-А404 | Throttle start valve | 1 |  |  |
| Р133-А405 | Screen changer | 1 |  |  |
| Р133-А409 | Spinnerets | 1 |  |  |
| Р133-А410 | Granulator | 1 |  |  |
| Р133-А420 | Granulator drive | 1 |  |  |
| Р133-А425 | Oil collector | 1 |  |  |
| Р133-А504 | Centrifuge | 1 |  |  |
| Р133-А506 | Granulation Water tank | 1 |  |  |
| Р133-А507 | Pumping station | 1 |  |  |
| Р133-А509 | Plate heat exchanger | 1 |  |  |
| Р133-А511 | Vibrating screen | 1 |  |  |
| Р133-А601 | Temperature control station | 1 |  |  |
| Р133-А602 | Oil heating station | 1 |  |  |
| Р133-А604 | Vacuum unit | 1 |  |  |
| Р133-А606 | Hydraulic unit | 1 |  |  |
| Р133-А608 | Steam pump fan | 1 |  |  |
| Р133-А804 | Flow plastomer | 1 |  |  |