7.ROASTING PRODUCTION MANAGEMENT

7.1 Selection of premises

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PARAMETERS

- **Floor area**
- **Availability of communications**
  (gas, required electricity power)
- **Number of floors**
- **Ceiling height**
- **Transport accessibility**
- **Distance from residential/office buildings**

7.ROASTING PRODUCTION MANAGEMENT

7.2 Storage of green beans

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STORAGE CONDITIONS FOR GREEN BEANS

- **Temperature: 15-18°C**
- **Humidity: 60%**
- **Shock or acoustic freezing for expensive varieties**

Acoustic freezing is a cooling method that uses acoustic waves to reduce the temperature of an object or substance.

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7.ROASTING PRODUCTION MANAGEMENT

7.3 Exhaust pipes

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TYPES OF PIPES

SANDWICH

do not heat up from the outside, no condensation forms

SINGLE LAYER

affordable, versatile, easy to install

EXHAUST PIPES DESIGN

NUMBER OF ANGLES

- Ideal pipes are straight and short (5 meters is optimal)

SMOOTHNESS OF CORNERS

- Eliminate 90% angles

CLEANING DOOR

CORRESPONDING PIPE DIAMETER

- Avoid constrictions

7.ROASTING PRODUCTION MANAGEMENT

7.4 Fire safety

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TYPES OF FIRE EXTINGUISHERS

POWDER-TYPE

Combustion of solids

They are covered with powder, which is not always desirable.

CARBON DIOXIDE

Burning electronics under voltage

Less effective for burning solids

BASICS

of fire safety

1. **In case of fire, call 101**
2. Employee training
3. Availability and scheduled inspection (once a year), recharging (once every 5 years) of fire extinguishers
4. Fire alarm
5. Marking according to fire safety standards
6. Availability of fire exits
7. Cleaning of pipes
8. Cleaning of husk

7.ROASTING PRODUCTION MANAGEMENT

7.5 Gas

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NATURAL GAS

Mains gas

PROS

- No need to keep track of the leftovers
- Stable composition
- Eco-friendliness
- Lower cost

CONS

- Not everywhere there is access to the mains
- More difficult to get an agreement

BASICS

of gas safety

1. **Emergency service - 104**
2. Employee training
3. Checking the system by a certified engineer at least once a year (optimally 6 months)
4. Gas alarm

7.ROASTING PRODUCTION MANAGEMENT

7.6 Electricity

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FORMULA

for calculation

POWER (Watt) = $\sum$ CAPACITY OF ALL DEVICES

FEATURES OF THE ORGANIZATION:

WIRES AND CABLES

Use cables with a cross-section appropriate for the power consumption to avoid overheating and short circuit.

AUTOMATIC SWITCHES

Connect all major devices to circuit breakers that shut off power in the event of an overload.

GROUNDING

Roasters and other large equipment must be properly grounded to prevent electrical shock.

7.ROASTING PRODUCTION MANAGEMENT

7.7 Ventilation

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FORMULA

to calculate power

$$P = V * K,$$

Where:

V is the volume of air in the room (m^3), K is the air exchange rate coefficient (how many times per hour the air should be renewed) for industrial premises - from 4 to 6 times per hour

The performance of the exhaust system must be equal to the performance of the supply system to ensure effective air exchange.

EXAMPLE

of power calculation

$$P = V * K,$$

Let's say we have a room with a volume of 100 m^3. The required air exchange rate is 4 times per hour. Then the calculation will be as follows:

$100^*4 = 300\ m^3/h$

7.ROASTING PRODUCTION MANAGEMENT

7.8 Roaster Maintenance

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BASICS

of fire safety

1. **Cleaning pipes (once a month)**
2. **Cleaning the cooler (once a day)**
3. **Cleaning the airflow rotor (once a month)**
4. **Cleaning the burner (once every six months)**

* The regulation may be reduced depending on the intensity of roasting/pollution

5. **Bearing lubrication**
6. **Changing the oil in the gearboxes (every six months)**
7. **Cleaning/replacing gas and air filters**
8. **Cleaning and replacing flame sensors/spark plugs**

* Service according to the manufacturer's regulations for the number of hours and working days

7.ROASTING PRODUCTION MANAGEMENT

7.9 Coffee packaging

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TYPES OF PACKAGING

PACKAGE WITH A DEGASSING VALVE

Storage from 1.5 to 3 months

REPLACEMENT OF OXYGEN WITH NITROGEN

Storage from 3 to 6 months

TYPES OF PACKAGING MACHINES

WEIGH BATCHER

- The operator doses the coffee and seals the bag manually.

PACKAGING MACHINES

- The machine doses coffee into a ready-made bag and seals it.

AUTOMATIC PACKAGING LINES

- The device forms a bag from the film, doses, seals, and “welds” the valve.

ROBOTIC PACKAGING SYSTEMS

- The most powerful systems perform many operations on packaging, labeling and others.

7.ROASTING PRODUCTION MANAGEMENT

7.10 Problems with the roaster

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PROBLEMS

1. **Low burner power/ dying out** - problem with gas supply, gas-air mixture
2. **“Jumping” non-objective temperature readings** - faulty, dirty temperature sensor
3. **Drum creaking** - incorrect gap between drum and roaster wall, stuck bean/stone
4. **Too long roasting** - not enough gas pressure, cold green beans
5. **Long cooling of bean** - “contamination” in the cooler, high temperature in the room