



## INCREASING THE EFFICIENCY OF THE ADDITIVES SYSTEM IN THE PRODUCTION PROCESS OF POLYETHYLENE PIPES

*Yulduz Xidirova*

*Professor at Karshi State Technical University*

*Hulkar Husanova*

*Master's student at Karshi State Technical University*

**Abstract.** *This scientific in the article polyethylene pipes working release in the process additions add system efficiency increase issues wide illuminated. Additions types, their polymer to the mass effect, dosage accuracy importance and modern automated from systems use through working release quality improve roads analysis done. Obtained results high good quality and competitive polyethylene pipes working in the release important scientific and practical importance.*

**Key words:** *polyethylene pipe, additives, dosage system, extrusion, asterbatch, automation.*

**Introduction.** Current on the day polymer from materials to be prepared to products was need intense at a pace exceed Especially from polyethylene working removable pipes water supply, gas network, sewage, industry and village farm in the fields wide Polyethylene pipes high chemical stability, corrosion resistance durability, light weight and far service deadline with separated stands.

Polyethylene pipes working in the release product quality provision only raw material to the quality related not, technological of processes right organization to be closely with Especially, it depends on the manufacturer. release in the process applicable additions of the pipe mechanical, thermal and exploitative features by designating gives. Therefore, additions polymer to the mass clear and one flat input important scientific and technical task is considered.

Polyethylene pipes mainly extrusion method through working Extrusion process high to fertility has product of quality stability provides. This in process



polyethylene granules high at temperature melted, screwed mechanism using special from the mold will be issued and pipe to the shape is brought.

Technological process following main from stages consists of:

- polyethylene granules preparation and drying;
- additions dosed accordingly input;
- in the extruder melting and homogenization;
- the pipe formation;
- cooling and calibration;
- cutting and ready the product packaging.

From polyethylene pipes working in the release applicable additions their functional to the tasks according to one how many to groups is divided. **Antioxidants** polymer high temperature and oxygen under the influence oxidation process They slow down. extrusion in the process polyethylene disintegration prevent take the pipe far term service to do provides. **Heat and UV stabilizers** this additions pipes external environment factors, including the sun radiation and high from the temperature protection UV stabilizers open under the circumstances used pipes for important Pigments coloring pipes with together, their functional to be determined also serves in identification Pigments polymer in the mass one kind distribution product of quality important Modifiers polyethylene mechanic strength , elasticity and to the blow endurance to increase service The current problems encountered in the process of adding additives in the production of polyethylene pipes include the following .

- dosage accuracy enough not;
- of additions polymer in the mass uneven distribution;
- human to the factor high at the level dependency;
- technological parameters control to do complexity;
- raw material and energy spend increase.

Methods for increasing the efficiency of the additive system in the production of polyethylene pipes include the following:



Automated dispenser's Gravimetric dispensers using additions high in accuracy dosed accordingly input This product is possible. quality stabilizing, human factor reduces.

### **Masterbatch technology**

Additives in the form of masterbatch input their polymer in the mass one flat distribution provides and working release process simplifies.

### **Digital control systems**

Sensors and automated management systems technological parameters in real time in mode observation opportunity gives.

The technological importance of increasing the efficiency of production of polyethylene pipes:

- pipes quality increases;
- marriage products amount decreases;
- raw material and energy from resources effective used;
- working release price tag decreases;
- of the enterprise competitiveness increases.

. **Conclusion.** Application in obtaining the prepared composition, and studying the strength of the obtained pipes. Testing is carried out at room temperature. The number of samples should not be less than five of the same material. Before testing, the thickness and width of the working part of the tensile sample are measured and its cross-sectional area is determined. Measurements are made at least in three places of the sample to an accuracy of 0.01 mm. Then the sample under test is clamped between the machine grips. During the test, one of the machine grips is fixed. Usually, the upper grip of the breaking machine is fixed, and the lower grip is movable. After the sample is installed between the clamps, a gradually increasing force is applied to it from zero until a force is created that breaks the sample. Then the force at the time of breaking the sample is determined from the machine scale in N (newtons).



## REFERENCES

1. Gulomov SG. , Khudoyberdiev AA Polymer materials technology. – Tashkent, 2018.
2. Abdurakhmonov RA Polymer and composite materials. – Tashkent, 2019.
3. Ochilov BM Plastics again work technology. – Tashkent, 2017.
4. Rauwendaal C. Polymer Extrusion. – Hanser Publishers, 2018.
5. Ebnesajjad S. Additives for Plastics Handbook. – Elsevier, 2020.
6. Rosato DV, Rosato MG Plastics Processing Data Handbook. – Springer, 2019.
7. ISO 4427. Plastics piping systems – Polyethylene (PE).