Research of the rubber blend properties based on Butadiene-Nitrile and diene rubber

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Relevance and problem:

Often rubbers do not withstand the harsh conditions of the Far North reaching -50 ° C and do not meet their requirements. To date, the creation of frost-resistant and aggressively resistant sealing materials is an important task, especially in our republic.In order to achieve the required set of properties, by such a method, it is necessary to conduct research.

The scientific novelty:

For the first time in the republic, rubber was created with such a ratio of mixtures.

Aim:

Study of the properties of rubbers based on mixtures of butadiene-nitrile and diene rubbers.

Tasks:

Study of the properties of rubbers based on mixtures of butadiene-nitrile and diene rubbers.

Subject of research:

- Butadiene-nitrile rubber (BNKS-18)
- Isoprene rubber (SKI-3)
- Butadiene rubber (SKD)

Vulcanisation:

The technological process of interaction of rubbers with a vulcanizing reagent, in which rubber molecules are cross-linked into a single spatial grid.

Formulation:

№1

Ingredient	(mass number)
BNKS-18	49
BNKS- 26	21
Stearic acid	1
SKI-3	6
SKD	24
technical carbon	60
Sulfur	0,4
DBF	24
Zinc oxide	5
Sulfenamide C	2
Morpholine	2
Neozode D	1,5

№2

Ingredient	(mass number)
BNKS-18	49
BNKS- 26	21
SKI-3	6
SKD	24
technical carbon	60
Sulfur	0,4
Stearic acid	1
Zinc oxide	5
Sulfenamide C	2
Morpholine	2
Neozode D	1,5
DBS	25

Experimental procedure:

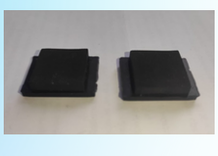
Determination of conditional tensile strength and elongation on the SHIMADZU AGS-J machine

№	Tensile strength, Mpa	Relatively Lengthening at break %
1	8.45	310
2	7.58	283

Determination of the frost resistance of rubbers. The tests are carried out in accordance with «ГОСТ 13808-79»

№	Recovery coefficient
1	0,36
2	0,3

Determination of erasability on the «МИ – 2» machine



№	Density	Erasabilty mo - m/ P
1	1,147	0,364
2	1,139	0,332

Conclusion:

1.Rubbers based on mixtures of rubbers (BNKS-18+SKI-3+SKD) were created
2.Rubbers based on mixtures of rubbers with different plasticizer content (DBS, DBF) were investigated
3.It was found that rubber with DBS plasticizer has good frost resistance, but has less wear resistance than rubber with DBF content
4.Physico-mechanical properties were better for rubber with DBF

Partners