

The magazine is published with participation of  
*Kuban*  
*state agrarian University*  
*named after I. T. Trubilin*

**Editor-in-chief**  
M.E. MARCHENKO

**Deputy Editor-in-chief**  
R.A. AMERKHANOV

**EDITORIAL BOARD**

R.A. AMERKHANOV  
V.N. AZAROV  
P. BALTRENAS  
V.A. BUTUZOV  
Y.S. VASILIEV  
A.N. VASILIEV  
A.V. VOLKOV  
O.V. GRIGORASH  
V.V. ELISTRATOV  
I.M. KIRPICHNIKOVA  
S.I. MAGID  
N.V. MENZELINTSEVA  
S.V. OSKIN  
A.V. PAVLENKO  
D.S. STREBKOV  
M.A. TARANOV  
B.G. TUVAL'BAEV  
M.G. TYAGUNOV  
V.V. KHARCHENKO  
N.I. TSYGULEV  
V.I. SHARAPOV  
I.V. YUDAEV  
E.B. YURCHEVSKY  
L.Y. YUFEREV

**Technical editor**  
J.S. SERGEEVA

**Founder:**  
LLC «ENIV»

*The magazine is issued in interests  
and on money of followers.*

*The magazine is registered  
State Committee*

*The Russian Federation on the press.  
Certificate No. 016042  
of April 30, 1997.*

*Certificate on a re-registration of  
PI No. FS77-44018  
of March 01, 2011.*

**Subscription indexes**

**П6414 - Russian Post**  
**42815 - Ural-Press**

**Phone of Editorial Board:**  
+7-915-4213768

E-mail: mem462@yandex.ru  
Site: www.energija.ru

Signed 25.10.2019  
The 200 copies

It is printed in Printing houses  
Onebook.ru  
LLC «Sam Poligrafist»  
6 Protopopovskii per., Moscow

SCIENTIFIC-TECHNICAL MAGAZINE  
Published since 1997

# **ENERGYSAVING AND WATERTREATMENT**

**No. 5 (121)**

**2019, October**

## **CONTENTS**

<b>WATERTREATMENT AND WATER PURIFICATION.....</b>	<b>3</b>
<b>Agamaliyev M.M., Ahmadova J.A.</b> Research of technology vapour compression desalinations of water of Caspian Sea with preliminary nanofiltration softening.....	3
<b>RESEARCH, DESIGN, CALCULATIONS.....</b>	<b>9</b>
<b>Chibisov R.E., Kanischev M.V., Meshalkin V.P., Ulyev L.M., Vasilyev M.A.</b> Heat integration of the distillates hydrotreatment process.....	9
<b>Bobkov V.I., Borisov V.V., Chernovalova M.V.</b> Indistinct and logical kinetic model of drying pellets.....	15
<b>Khvostikov A.S., Bogdanov K.S.</b> Modernization of cooling towers operated in difficult climatic conditions.....	22
<b>Dzhavatov D.K., Azizov A.A.</b> Analysis of performance of a horizontal telescopic well on example of the Tarumovskiy field of thermal water.....	27
<b>Grankina N.A., Masenko A.V., Shchebeteev V.A., Kuzmenko M.E.</b> Peculiarities of the vibrators electric drives power determining.....	32
<b>Gaitova T.B., Ladenko N.V., Ladenko A.A., Kreminsky B.O., Dulepov I.V.</b> Influence of pulsations of supply current on electromagnetic processes in the axial machine.....	36
<b>Rozhitsky D.B., Filatkin M.S., Mikhailovskii D.S.</b> To the question of determining consumption of diesel fuel for operation of production-heating boiler of railway vehicles running on heavy fuel oil .....	40
<b>Amerkhanov R.A., Grigorash O.V., Vorob'ev E.V.</b> About mathematical modeling methods energy systems.....	44
<b>Ivanitskiy M.S.</b> The calculation of the emissions of benz(a)pyrene combustion of petroleum coke brand K2 energy boilers in Thermal Power Plant.....	52
<b>Polevich A.N., Marchenko M.E.</b> Protection against atmospheric corrosion of the internal surfaces of steam-water tract of steam boiler filling with dry atmospheric air.....	57
<b>ENERGYSAVING TECHNOLOGIES .....</b>	<b>61</b>
<b>Didenko V.N., Svalova M.V., Isaev A.V., Uzakov N.D.</b> Method for comparative evaluation of heat losses of the reactors at the stage of preliminary design of a biogas plant.....	61
<b>Amerkhanov R.A., Grigorash O.V., Arakelyan N.S., Antonov V.I.</b> Technological and economic explanation of parameters of combined solar power plant in climatic conditions of Krasnodar.....	67
<b>PARTNER NEWS.....</b>	<b>77</b>
<b>LITERATURE PAGE.....</b>	<b>79</b>
<b>TO READERS AND SUBSCRIBERS.....</b>	<b>80</b>