

TRISODIUM PHOSPHATE WASTE AND LOCAL ASH

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Abstract. In the article with ammonia liquefaction of saltpeter with TNFCh and local ash minerals Nitrogen-phosphorus-potassium formed as a result of mixing of liquids rheological properties were studied. The methods and additions of nitrogenphosphorus-potassium fertilizers are discussed based on local ash mineral and industrial waste.

Keywords. nitrogen-phosphorus-potassium fertilizer, viscosity, density, "Sunflower", "Gho'zapoya", "Gong" are local ash minerals.

Ammoniacal liquefaction of saltpeter with trisodium phosphate waste and local ash minerals Nitrogen-phosphorus-potassium formed as a result of mixing of liquids It is difficult to know the rheological properties (density and viscosity) of fertilizerliquids easy transportation and granulation in this apparatus and equipment enable gives That's it according to 165-180 °Ctemperature in between initial of substances studied all weight proportionsaccording to received nitrogen-phosphorus-potassium of liquids density pycnometer and viscosity VPJ-2 viscometer using was determined.

The experiments were conducted as follows. To liquefy ammonium nitrate by adding crushed trisodium phosphate waste and ash mineral flour with nitrogen-phosphorus-potassium liquids prepared. That's it method prepared received liquids initially room up to temperature cooled, then well done crushed.

Measured known in quantity nitrogen-phosphorus-potassium samples in advance put into a specially prepared pycnometer and viscometer and these devices e sa gli ts are placed in a thermostat filled with erin. The temperature in the thermostat

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when it rises to the specified values (in the temperature range of 165-180 °C). pycnometer and in the viscometer powder in case nitrogen-phosphorus-potassium mixture began to liquefy. Liquids for 3-5 minutes determined at temperatures holding got up Tests in the process 3 times repeat measurements The average values of the determined numbers after the transfer of liquid density and viscosity about information note by doing will go

Implemented s inovs results in Table 1 below given.

Table 1

AS: TNFCh weight ratio In the mix Amount of KM, % 165-180 at °C temperatures liquid - lanyards density (g/cm ³) 165-180 at °C temperatures liquid - lanyards viscosity (Pa-c) 1	local ash and q frictions									
N.G. TNFCh weight ratioIn the mix Amount of KM , %Ianyards density (g/cm^3) Ianyards viscosity $(Pa \cdot c)$ 11 <t< td=""><td>Δ<u>ς</u>.</td><td>1</td><td colspan="4">165-180 at °C temperatures liquid -</td><td colspan="4">165-180 at °C temperatures liquid -</td></t<>	Δ <u>ς</u> .	1	165-180 at °C temperatures liquid -				165-180 at °C temperatures liquid -			
Amount of weight ratioAmount of KM , %1651 r r r 	TNECh	In the mix	lanya	rds densi	ty (g/cn	1 ³)	lany	ards visc	osity (Pa	•с)
ratio 0 5 0 7	weight	Amount of KM , %	165	1 7	1 7	18	1 6	1 7	1 7	18
"Sunflower" ash mireral 100:3 3 1.712 1.703 1,682 1,631 8.02 7.99 7,79 7,64 100:3 5 1,783 1.714 1,694 1,665 9.56 9.44 9,32 8.89 100:3 7 1,796 1,775 1.745 1.704 10,12 9,91 9,65 9,24 100:3 10 1.803 1,786 1,756 1.713 11,14 10,85 10.27 9.89 100:5 3 1,764 1,748 1,737 1,712 11.18 10.88 10,45 10.24 100:5 3 1,764 1,748 1,737 1,712 11.88 10.45 10.24 100:5 7 1,807 1,767 1,758 1,735 11.72 11.26 11.01 10.50 100:5 7 1,807 1,791 1,779 1,755 12,80 12,17 11.88 11.42 100:10 3	ratio	2 A		0	5	0	5	0	5	0
100:33 1.712 1.703 $1,682$ $1,631$ 8.02 7.99 7.79 7.64 $100:3$ 5 $1,783$ 1.714 $1,694$ $1,665$ 9.56 9.44 $9,32$ $8,89$ $100:3$ 7 $1,796$ $1,775$ 1.745 1.704 $10,12$ $9,91$ $9,65$ $9,24$ $100:3$ 10 1.803 $1,786$ $1,756$ 1.713 $11,14$ $10,85$ 10.27 9.89 $100:5$ 3 $1,764$ $1,787$ $1,775$ $1,712$ 11.18 10.88 $10,45$ 10.24 $100:5$ 5 $1,775$ $1,767$ $1,775$ $1,775$ 11.72 11.26 11.01 $10,56$ $100:5$ 7 $1,807$ $1,791$ $1,779$ $1,754$ 12.26 11.72 11.40 10.95 $100:5$ 10 $1,828$ $1,812$ $1,801$ $1,775$ 12.80 12.17 11.88 11.42 $100:10$ 3 $1,849$ $1,833$ $1,821$ $1,793$ $12,85$ 12.63 12.15 11.64 $100:10$ 5 $1,871$ $1,854$ $1,842$ $1,816$ 12.89 12.68 12.23 12.06 $100:10$ 7 $1,892$ $1,875$ $1,863$ $1,838$ 13.23 12.54 12.41 12.16 $100:10$ 7 $1,913$ $1,897$ $1,884$ $1,851$ 13.97 12.99 12.68 12.79 $100:10$ 10 $1,913$ $1,918$ $1,990$ $1,$			"Si	unflower"	ash mir	neral	1			
100:3 5 $1,783$ 1.714 $1,694$ $1,665$ 9.56 9.44 $9,32$ $8,89$ $100:3$ 7 $1,796$ $1,775$ 1.745 1.704 $10,12$ $9,91$ $9,65$ $9,24$ $100:3$ 10 1.803 $1,786$ $1,756$ 1.713 $11,14$ $10,85$ 10.27 9.89 $100:5$ 3 $1,764$ $1,748$ $1,737$ $1,712$ 11.18 10.88 10.45 10.24 $100:5$ 5 $1,775$ $1,767$ $1,758$ $1,735$ 11.72 11.26 11.01 $10,56$ $100:5$ 7 $1,807$ $1,791$ $1,779$ $1,754$ $12,26$ 11.72 11.40 10.95 $100:5$ 10 $1,828$ $1,812$ $1,801$ $1,775$ $12,80$ $12,17$ 11.88 $11,42$ $100:10$ 3 $1,849$ $1,833$ $1,821$ $1,793$ $12,85$ $12,63$ $12,23$ 12.01 $100:10$ 7 $1,892$ $1,875$ $1,863$ $1,838$ $13,23$ $12,64$ $12,41$ $12,16$ $100:10$ 7 $1,913$ $1,897$ $1,884$ $1,851$ 13.97 12.99 $12,68$ $12,29$ $100:20$ 3 2.005 $1,918$ $1,90$ $1,878$ 14.51 $13,05$ $12,79$ $12,39$	100:3	3	1.7 12	1.7 03	1,682	1,631	8.02	7.99	7,79	7,64
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	100:3	5	1, 783	1.7 1 4	1,694	<mark>1, 66 5</mark>	9.56	9.44	9,32	8,89
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	100:3	7	1, 796	1, 77 5	1.7 4 <mark>5</mark>	1.704	10,12	9,91	9,65	9,24
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	100:3	10	1.8 0 3	1, 78 6	1, 75 6	1.7 1 3	11,14	10,85	10.27	9.89
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100:571,8071,7911,7791,75412,2611.7211.4010.95 $100:5$ 101,8281,8121,8011,77512,8012,1711,8811,42 $100:10$ 31,8491,8331,8211,79312,8512,6312.1511.64 $100:10$ 51,8711,8541,8421,81612,8912,6812,2312.01 $100:10$ 71,8921,8751,8631,83813,2312.5412,4112,16 $100:10$ 101,9131,8971,8841,85113.9712.9912,6812,23 $100:20$ 32.0051,918 $1,90$ 01,87814.5113,0512,7912,3	100 : 5	5	1, 775	1,767	1, 7 58	1,735	11.72	11.26	11.0 1	10,50
100:5 10 1,828 1,812 1,801 1,775 12,80 12,17 11,88 11,42 100:10 3 1,849 1,833 1,821 1,793 12,85 12,63 12.15 11.64 100:10 5 1,871 1,854 1,842 1,816 12,89 12,68 12,23 12.01 100:10 7 1,892 1,875 1,863 1,838 13,23 12.54 12,41 12,16 100:10 10 1,913 1,897 1,884 1,851 13.97 12.99 12,68 12,23 100:20 3 2.005 1,918 1,90 1,878 14.51 13,05 12,79 12,33	100 : 5	7	1,807	1,791	1,779	1,754	12,26	11.72	11.40	10.95
100:10 3 1,849 1,833 1,821 1,793 12,85 12,63 12.15 11.64 100:10 5 1,871 1,854 1,842 1,816 12,89 12,68 12,23 12.01 100:10 7 1,892 1,875 1,863 1,838 13,23 12.54 12,41 12,16 100:10 10 1,913 1,897 1,884 1,851 13.97 12.99 12,68 12,23 100:20 3 2.005 1,918 1,90 1,878 14.51 13,05 12,79 12,33	100 : 5	10	1,828	1,812	1,801	1,775	12,80	12,17	11,88	11,42
100:10 5 1,871 1,854 1,842 1,816 12,89 12,68 12,23 12.01 100:10 7 1,892 1,875 1,863 1,838 13,23 12.54 12,41 12,16 100:10 10 1,913 1,897 1,884 1,851 13.97 12.99 12,68 12,23 100:20 3 2.005 1,918 1,90 1,878 14.51 13,05 12,79 12,33	100:10	3	1,849	1,833	1,821	1,793	12,85	12,63	12.15	11.6 4
100:10 7 1,892 1,875 1,863 1,838 13,23 12.54 12,41 12,16 100:10 10 1,913 1,897 1,884 1,851 13.97 12.99 12,68 12,23 100:20 3 2.005 1,918 1,90 1,878 14.51 13,05 12,79 12,33	100:10	5	1,871	1,854	1,842	1,816	12,89	12,68	12, 2 3	12.0 1
100:10 10 1,913 1,897 1,884 1,851 13.97 12.99 12,68 12,23 100:20 3 2.005 1,918 1,90 1,878 14.51 13,05 12,79 12,3	100:10	7	1,892	1,875	1,863	1,838	13,23	12.54	12,41	12,16
100:20 3 2.005 1,918 1,90 0 1,878 14.51 13,05 12,79 12,3	100:10	10	1,913	1,897	1,884	1,851	13.97	12.99	12,68	12, 23
	100 : 20	3	2.0 0 5	1,918	1,90 0	1,878	14.51	13,05	12,79	12,36
100:20 5 2.016 2.029 2.021 1.993 14,75 13,30 13,24 13,01	100:20	5	2.0 1 6	2.0 2 9	2.02 1	1.99 3	14,75	13,30	13,24	13,01
100:20 7 2.037 2.031 2.027 2,012 14,79 14,36 13,41 13,16	100:20	7	2.0 3 7	2.0 3 1	2.0 2 7	2,012	14,79	14,36	1 3,41	13,16
100:20 10 2.0 4 8 2.0 3 2 2.0 2 8 2.0 1 3 15,13 14.81 13.79 13,62	100 : 20	10	2.0 4 8	2.0 3 2	2.0 2 8	2.0 1 3	15,13	14.81	13.79	13,62
100:25 3 2.1 01 2,09 3 2.08 1 2.0 4 1 15.67 14,27 14,16 1 3,7	100 : 25	3	2.1 01	2,093	2.08 1	2.0 4 1	15.67	14,27	14,16	13,77

Density of nitrogen-phosphorus-potassium fertilizers based on TNFCh and

31

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100 : 25	5	2.1 1 1	2.1 0 4	2,091	2.065	16,21	15.72	14.54	14,02
100 : 25	7	2.1 2 2	2.1 1 6	2.101	2,092	16,76	15,83	14.92	14,17
100 : 25	10	2.1 4 4	2.1 1 7	2.1 0 5	2,081	16,80	15,94	15,29	14.52

From him it seems that with ammonia increase of trisodium phosphate waste and local ash mineral content in saltpeter liquefaction with nitrogen-phosphorus-potassium of fluids too density and viscosities increases significantly. In this case, AS : TNFCh = 100 : 3 to 100 : 2 5 in proportions and 3, 5, 7 and 3, 5, 7 of the total mass of liquid trisodium phosphate waste 10% in the amount "Sunflower" ash adding received nitrogen-phosphorus-potassium saltpeter 165°C of liquefaction samples density and viscosities at temperature are suitable increasing from 1,712 to 2,144 g / cm³ and from 8,02 to 16,80 Pa · c was determined. Your temperature rise with eh this values 1.712 - 1.631 to 2.144-2.081 g / cm³ and 8.02-7.64 to 16.80-14.52 Pa·c decreased to go was determined.

Thus, in the temperature range of 165-18 0 °C and all studied trisodium phosphate waste with ammonium nitrate liquid in proportions and local ash mineral fourcomponent fertilizer liquids obtained as a result of interaction easy by sprinkling (prillirovaniya) or rapid mixing (okatka) methods granulation possible

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32	INTERNATIONAL SCIENTIFIC AND PRACTICAL E-CONFERENCE " MODERN TENDENCIES OF DIGITAL EDUCATION AND WAYS OF IMPLEMENTING THEM IN THE EDUCATIONAL PROCESS" – Brno, Czech					
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