622.73

. .

. - , 15, 49005, , ; *e-mail: np-2006@ukr.net*

$R = 0,9.$

$R = 0,9.$

Based on the experimental researches the device for determination of the material particle size in a flow is created. The purpose of the paper is regression model development of the determination process of material dispersion in a flow taking into account geometrical parameters of the device. The pacing factors influencing on characteristics of recoded acoustic signals in the material transportation are defined. The influence of each accepted factor and their cross impact on the maximum amplitude of acoustic signals are received with determination coefficient of $R = 0,9$. The constructed regression model allows improving the device for determination of bulk material dispersion in a flow.

, , -

[1]. , . -

-

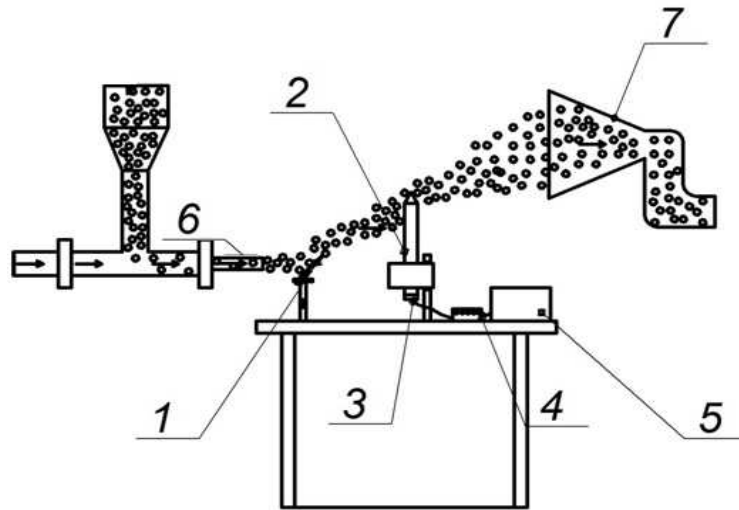, . -

. -

, , -

. . -

-

. -

, -

[2], -

, [3] -

[4]. -

, -

[5]. -

[6]. -

-

-

-

. -

. « » -

. -

. 1. : -

(6) -

, -

(1), -

(2), . -

(3), -

- ( ) (4), (5). -

- (7). -

, -

(-) -

[2].

. 1 –
1 – , 2 – « » , 3 –
4 – , 5 – , 6 – , 7 –

l_m ; L_b
; ; h

$$x_i = \frac{X_i - X_{i0}}{\Delta X_i},$$

102

x_i – $\quad$ i- $\qquad$; X_i –

$\quad$; X_{i0} – $\quad$ i- $\qquad$; ΔX_i –

$\quad$ i- $\qquad$. $\qquad$. 1.

		-2	-1	0	+1	+2
L_b,		100	130	160	190	220
l_m,		110	120	130	140	150
h,		30	40	50	60	70
, °		0	7,5	15	22,5	30

:

$$Y = a_0 + \sum_i^n a_i x_i + \sum_i^n a_{ii} \cdot x_i^2 + \sum_{i<j}^n a_{ij} \cdot x_i \cdot x_j \qquad (1)$$

Y – $\qquad$ ( ); a_0 – $\qquad$; $a_i \cdot x_i$,

$a_{ii} \cdot x_i^2$ – $\qquad$; $_{ij} \cdot x_i \cdot x_j$ – $\qquad$ -

$\qquad$; $n = 4$ – $\qquad$ -

$- 2^4 + 8$.

$\qquad$ -

Statgraphics Plus. $\qquad$ F

($\qquad$) $\qquad$. -

$\qquad$ R, $\qquad$,

$\qquad$. $\qquad$ $_i$, a_{ii} $\qquad$ -

$\qquad$ x_i $\qquad$: $\qquad$ -

$\qquad$ x_i, $\qquad$ -

$-$ $\qquad$. $\qquad$, $\qquad$ -

$\qquad$. $\qquad$ (a_{ij}) $\qquad$.

$\qquad$, $\qquad$.

$\qquad$ a_{ij} $\qquad$,

$\qquad$ x_i x_j $\qquad$.

$\qquad$, $\qquad$ (

) $\qquad$, $\qquad$ -

, $\qquad$.

$\qquad$, $\qquad$ -

$\qquad$, $\qquad$.

$\qquad$,

$\qquad$ 1,0 :

$$A_{\max} = 138 - 6{,}70833 \cdot L_b - 3{,}04167 \cdot l_m + 7{,}79167 \cdot h + 21{,}7917 \cdot r$$
$$- 6{,}59375 \cdot L_b^2 - 1{,}1875 \cdot L_b \cdot l_m - 0{,}4375 \cdot L_b \cdot h - 2{,}3125 \cdot L_b \cdot r$$
$$- 3{,}21875 \cdot l_m^2 - 1{,}5625 \cdot l_m \cdot h - 1{,}4375 \cdot l_m \cdot r - 7{,}21875 \cdot h^2 +$$
$$+ 2{,}8125 \cdot h \cdot r - 3{,}09375 \cdot r^2. \tag{2}$$

$R = 0{,}9,$, -

90 % -

.

, . . -

0. . 2 – 5

.

. 2 – $L_b = 0$ $l_m = 0$

. 3 – h=0 l_m=0

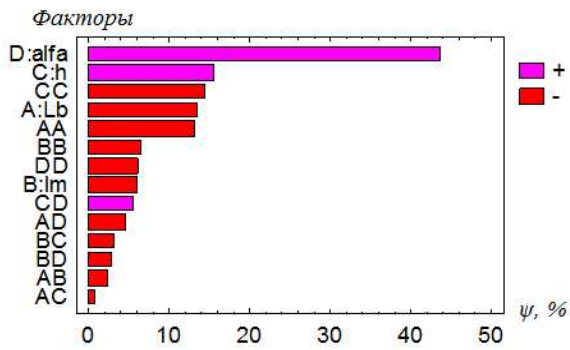. 4 – $L_b = 0$ $h = 0$

104
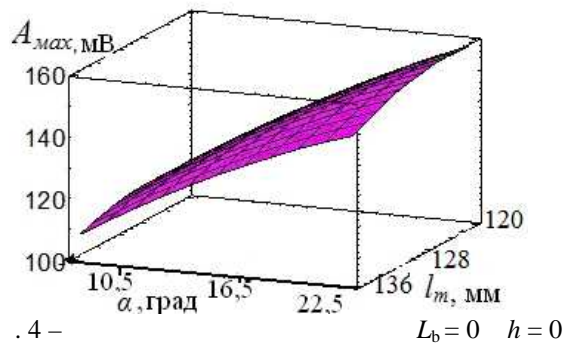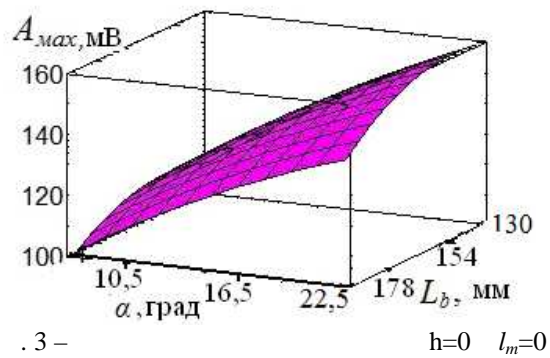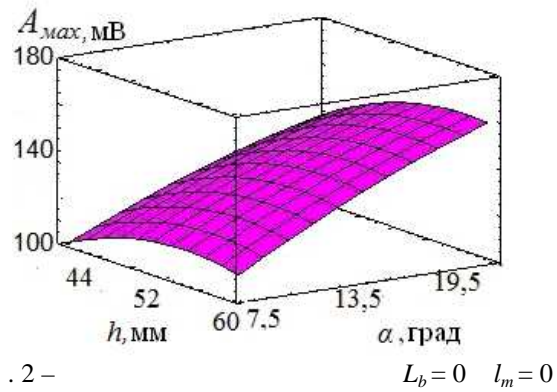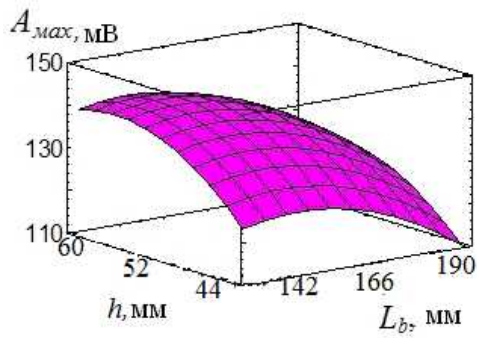
. 5 – $= 0$ $l_m = 0$

,   ,   -
      ,
   : $L_b = 139$; $l_m = 141$; $h = 60$; $= 30°$.   6
Œ , %   .

. 6 –   -

                   ,
   D, . .   , C A,   -
h (   ) L_b (
).   ,   -
(44%)
                   ,   -
                                               (16 %).   -
                                                                              -
   ,   -
                              (l_m)   -
                                         ,   -
                                               6,5%.   -
   ,   -
           ,   ,   -
                                                                              -
(   ).   -

          .

$(\quad)$: $L_b = 139 \quad$; $l_m = 141 \quad$; $h = 60 \quad$; $ = 30°$.

1. . . . 2014. 58 (99). – 59 (100). . 71 – 78.
2. . . - . 2012. 6. . 46 – 52.
3. . . : . - . : 05.15.08 . , 2015. 36 .
4. . ., . ., . . . : - . 2013. 54 (95). . 52 – 61.
5. a2015 07099 , 02 19/06. / . ., . ., . ., . .; , 16.07.2015.
6. . ., . . « ». . 2016. 64 (105). . 111 – 118.