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INTERSTATE COUNCIL FOR STANDARDIZATION, METROLOGY AND CERTIFICATION  
(ISC)

**31371.5-**  
**2008**  
**( 6974-5:2000)**

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**Ci—** 5 6+

**I S O 6974-5:2000**

**Natural gas — Determination of composition with defined uncertainty by gas chromatography — Part 5: Determination of nitrogen, carbon dioxide and C-, to C<sub>5</sub> and C<sub>6+</sub> hydrocarbons for a laboratory and on-line process application using three columns (MOD)**

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» 1.2—97 « 1.0—92 «  
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( 3166) 004—97	( 3166) 004—97	
	AZ BY KZ KG MD RU  TJ TM UZ UA	« »

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 6974—5:2000 «  
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 » (ISO 6974-5:2000<sup>5</sup> 6+  
 «Natural gas — Determination of composition with defined uncertainty by gas chromatography — Part 5: Determination of nitrogen, carbon dioxide and C<sub>1</sub> to C<sub>5</sub> and C<sub>6+</sub> hydrocarbons for a laboratory and on-line process application using three columns»).

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1	.....	1
2	.....	2
3	.....	2
4	.....	4
5	.....	5
6	.....	6
6.1	.....	6
6.2	.....	7
6.3	.....	7
6.3.1	.....	7
6.3.2	.....	7
6.4	.....	8
6.4.1	- .....	8
6.4.2	.....	8
7	.....	9
7.1	.....	9
8	.....	9
	( ) .....	10
	( ) .....	12
	( ) .....	13
	.....	14

31371.5—2008

31371.6—2008 ( 6974-6:2002)		31371.7—2008	31371.1—2008 ( 6974-1:2000)	
(	—	)	«	»
-	1.	;		
-	2.			;
-	3.	,	,	,
8	4.	,		1—5 6+
-	5.	,		1—5 6+
-	6.	,	,	,
— 8	7.	;		
1—6	6974-1 — 6974-6.			
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		31371.1	31371.2.	

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5 6+

Natural gas. Determination of composition with defined uncertainty by gas chromatography method. Part 5.  
Determination of nitrogen, carbon dioxide and C<sub>1</sub> to C<sub>5</sub> and C<sub>6+</sub> hydrocarbons for a laboratory and on-line process  
application using three columns

— 2010—01—01

1

1 —

	, %
	0,001—15,0
	0,001—8,5
	75—100
	0,001—10,0
	0,001—3,0
(2- )	0,001—1,0
-	0,001—1,0
(2,2- )	0,001—0,5
(2- )	0,001—0,5
-	0,001—0,5
+ 6	0,001—1,0

1 —

» 6+

6

« 6+ -

31371.5—2008

2 —

( + )

3 —

8.010  
31371.7.

2

8.010—99<sup>2</sup>)

31371.1 —2008 ( 6974-1:2000, MOD)

1.

31371.2—2008 ( 6974-2:2001, MOD)

2.

31371.7—2008

7.

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6+

1.

6-

( 10- )

( )

1;

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3— 5-

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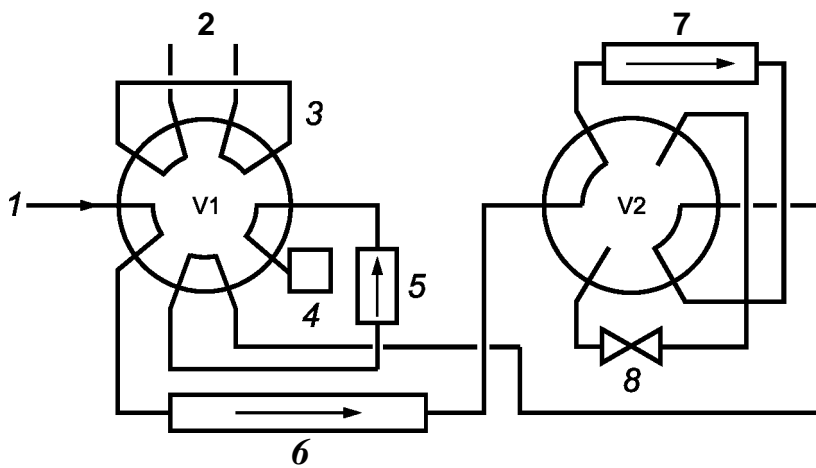
1,

1)

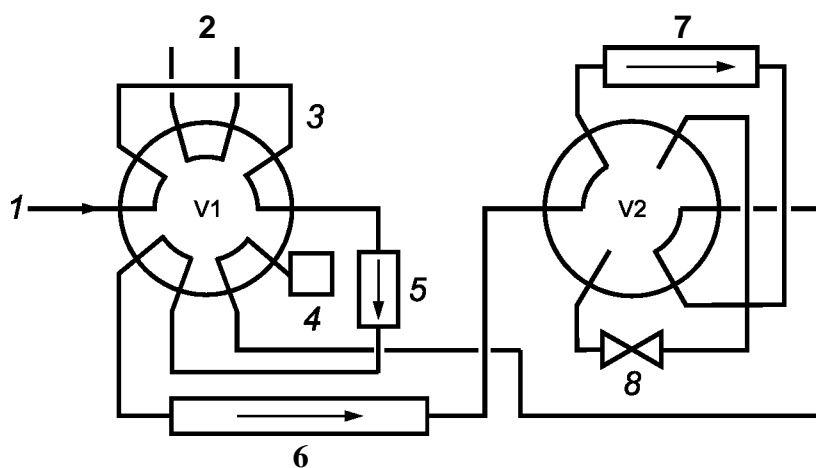
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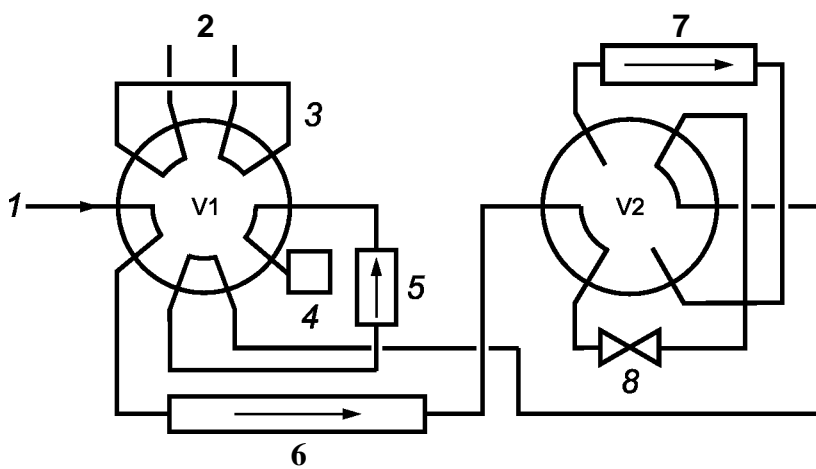
8.563—96.



— 1 (V1) 1 2 (V2) 1

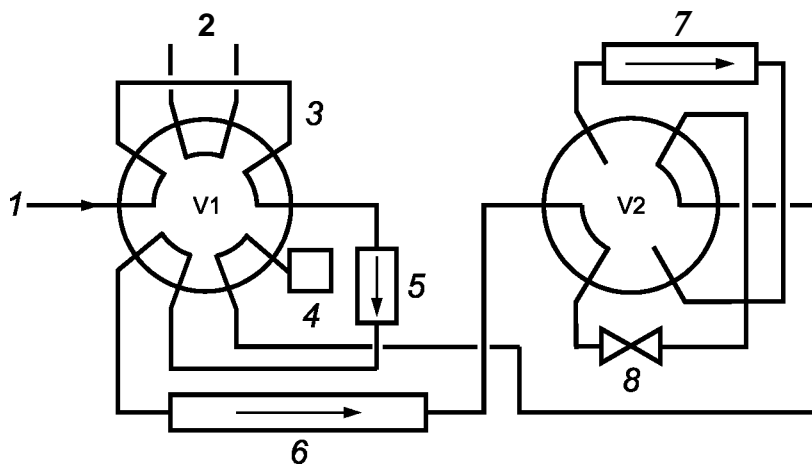


— 1 (V1) 2 2 (V2) 1



— 1 (V1) 1 2 (V2) 2

1—



d— 1 (V1) 2 2 (V2) 2

/ — ; 2 — ; 3 — ; 4 — ; 5 — 1; 6 — 2; 7 — 3; 8 —

1, 2

6+ (« »),  
) 2 3— 5

3— 5

1

6+

2

3

6+

1).

2.

#### 4

4.1 - ( ) 99,99 %,

4.2 2,2- , ,

95 %.

4.3 ( ),

[1] /

[2].

1)

31371.2, 1.



5

5.1

5.1.1

a)

70° 105° ;

b)

105° , ,

c)

5.1.2

10-

V1,  
6-

)( 1).

5.1.3

( 3)( 1, 2).

5.1.4

15 % DC-200/500,

Chromosorb PAW 28 % DC-200/500 Porapak N  
6.3,

a)

- 1: 0,75 , 2 ,
- 2: 5,2 , 2 ,
- 3: 2,4 , 2 ;

b)

- 1: Chromosorb PAW (45—60 ) 28 % DC-200/500;
- 2: Chromosorb PAW (45—60 ) 28 % DC-200/500;
- 3: Porapak N(50—80 ) 15 % DC-200/500

c)

6.3.

d)

8 50°

5.1.5

0,1

5.1.6

(0—1 )

5.1.7

6

6.1

- (5.1):
- a) : 70 ° 105 °
  - + 0,1 ° ;
  - b) : 1 2 3 ( 1 ),
  - ) 10 15 / ;
  - c) : 150 ° ( ) 70 °
  - + 2 ° ;
  - d) : 70 ° 105 ° ;
  - 
  - 
  - e) :
- 2

2—

	1	2	3
	DC-200/500	DC-200/500	DC-200/500
, %	28	28	15
	Chromosorb PAW	Chromosorb PAW	—
	—	—	Porapak N
,	45/60	45/60	50/80
,	0,75	5,2	2,4
,	2	2	2
		100	
-			
, ( )		400 (4)	
- , /		28	
, °		100	
, °		100	
,		0,1	

6.2

31371.2.

31371.1

6.3

6.3.1

[1],

[2]

3.

3—

1	2		
	-	1,0 0,75 2,0	1,5 1,5 2,3

6.3.2

2

(

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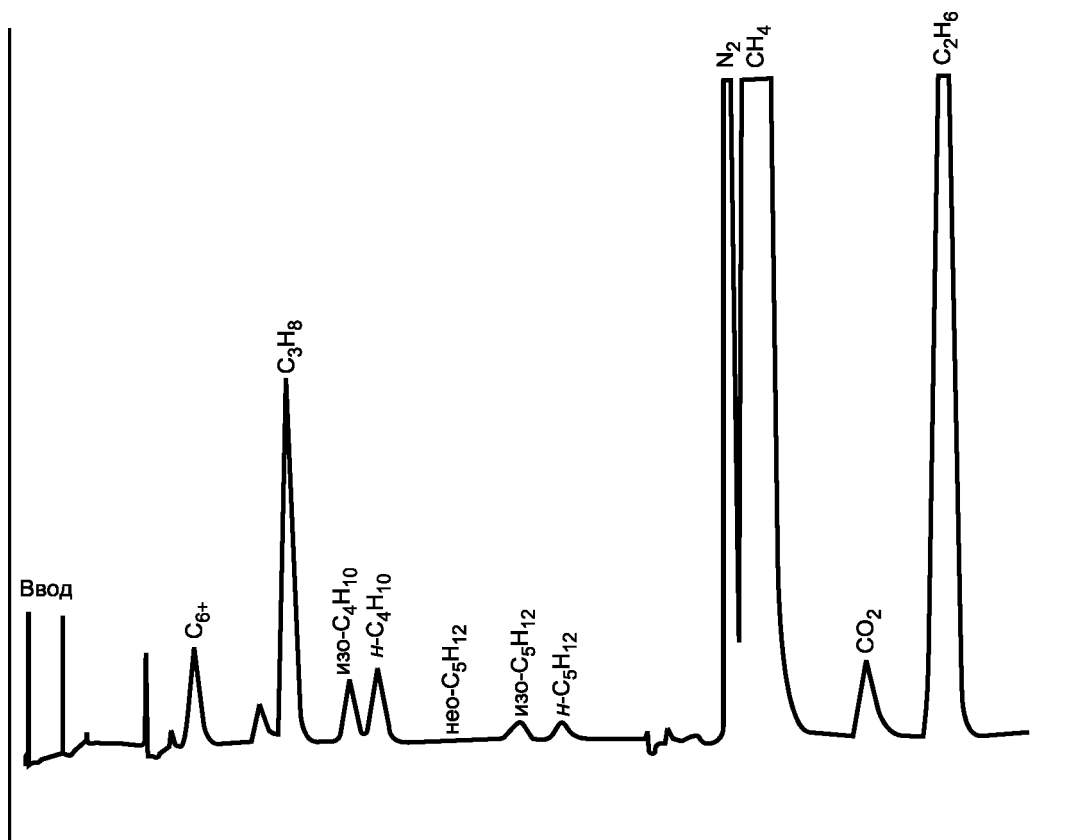


Рисунок 2 — Пример типичной хроматограммы

6.4

6.4.1

20-

6.4.2

6- V2. 1, 10- V1  
 3. 10-  
 6- 10-  
 1. V1 1) 2;  
 1, 6 1

- b) V2 2 ( , 3) , 2 ( 2) , -
- 3;
- c) V2 - , 2 3 ( 1), ,
- 1.

**7**

— 31371.1.

**7.1**

— 31371.2.

**8**

31371.1, 14.

( )

.1 1 ( ) 1 ) , 3 ( ) , 2  
 ( 1 ( ) , ) ,  
 .2 2 2 2 ( 95° 28 / 3 . -  
 , .1. , ,  
 .4 2, 2, , .1.  
 2 ( 1 d). , 2. 1 -  
 , .1 .  
 .2— .4. .  
 .5 (f<sub>first cut</sub>).  
 .6 3.  
 .6.1 , 6' - 5 2,2- (2,2- ) — 5 ( - 5)  
 , 6  
 .6.2 1, 1 ( ) , V1 - 5' .4, (  
 1). 6+  
 .6.3 , (V1 -  
 1) 0,05 ( 2,2- ) .  
 6+ 0,05  
 .6.4 (^back, high)'  
 .6.5 6+  
 .6.6 ( f<sub>back low</sub> ) . 1 (V1 1)  
 'back = ('back, low + 'back, high^2) (-1)  
**.7 2 (V2)**  
 .7.1 (V1 1) f<sub>first cut</sub> 1. 3 (V2 2). f<sub>back</sub>  
 2 1. KaKf<sub>V2 off</sub>n ,  
 3 ( 1). 2 ( 1),  
 .7.2 , f<sub>first GUTC</sub> 0,05 ,  
 3.  
 .7.3 f<sub>first GUTC</sub> 0,05 ,  
 , 3,  
 , f<sub>first</sub> | .

.7.4

2,

ffirst, high-  
.7.5

$f_{V2}$

3,

$$f_{V2, on} = (first, low + first, highV^2)$$

(A-2)

**A.8**

.1.

.1 —

0,01		V1 2	1
^back		V1 1	1
$f_{V2, on}$	3	V2 2	1
$f_{V2, off}$	3	V2 1	1

( )

$$\ln r = -4,5 + 0,25 \cdot \ln x, \quad (.1)$$

— , %;  
— , %.

.1

.1 —

, %		
< 0,1 0,1 < < 1 1 < < 50 50 < < 100	0,006 0,006—0,011 0,011—0,03 0,03—0,035	0,012 0,012—0,022 0,022—0,06 0,06—0,07
—	,	-



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6974-1:2000 « . 1. »	MOD	31371.1—2008 « . 1. »
6974-2:2001 « . 2. »	MOD	31371.2—2008 « . 2. »

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[1] 6142:2001

(ISO 6142:2001)

(Gas analysis — Preparation of calibration gas mixtures — Gravimetric method)

[2] 6143:2001

(ISO 6143:2001)

(Gas analysis — Determination of the composition of calibration gas mixtures — Comparison methods)

1)

662.767:658.562:006.354

75.060

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25.03.2009.

21.05.2009.

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2,32. 1,60. 278 317.

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