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OIL AND ALKYD PAINTS READY FOR USE. (U)

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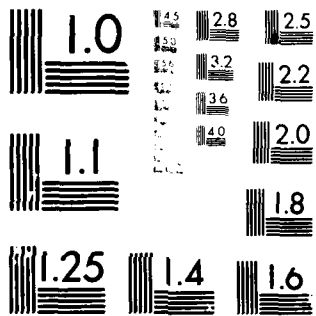
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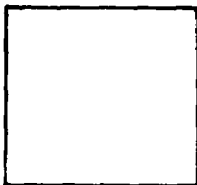


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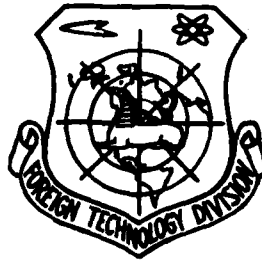
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# FOREIGN TECHNOLOGY DIVISION



OIL AND ALKYD PAINTS READY FOR USE



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## EDITED TRANSLATION

FTD-ID(RS)T-1040-79

13 July 1979

MICROFICHE NR: *FTD-79-C-000946*

OIL AND ALKYD PAINTS READY FOR USE

English pages: 12

Source: GOST 10503-71, Moscow, pp. 1-12

Country of origin: USSR

Translated by: Robert D. Hill

Requester: AFML/MXA

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PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Russian	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>A a</i>	A, a	Р р	<i>P p</i>	R, r
Б б	<i>B b</i>	B, b	С с	<i>C c</i>	S, s
В в	<i>V v</i>	V, v	Т т	<i>T t</i>	T, t
Г г	<i>G g</i>	G, g	У у	<i>U u</i>	U, u
Д д	<i>D d</i>	D, d	Ф ф	<i>F f</i>	F, f
Е е	<i>E e</i>	Ye, ye; E, e*	Х х	<i>X x</i>	Kh, kh
Ж ж	<i>Zh zh</i>	Zh, zh	Ц ц	<i>Cy cy</i>	Ts, ts
З з	<i>Z z</i>	Z, z	Ч ч	<i>Ch ch</i>	Ch, ch
И и	<i>I i</i>	I, i	Ш ш	<i>Sh sh</i>	Sh, sh
Й й	<i>Y y</i>	Y, y	Щ щ	<i>Sch sch</i>	Sch, sch
К к	<i>K k</i>	K, k	Ъ ъ	<i>Y y</i>	"
Л л	<i>L l</i>	L, l	Ы ы	<i>Y y</i>	Y, y
М м	<i>M m</i>	M, m	Ь ь	<i>Y y</i>	"
Н н	<i>N n</i>	N, n	Э э	<i>E e</i>	E, e
О о	<i>O o</i>	O, o	Ю ю	<i>Yu yu</i>	Yu, yu
П п	<i>P p</i>	P, p	Я я	<i>Ya ya</i>	Ya, ya

\*ye initially, after vowels, and after ъ, ь; e elsewhere.  
When written as ë in Russian, transliterate as yë or ë.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	arcsinh
cos	cos	ch	cosh	arc ch	arcosh
tg	tan	th	tanh	arc th	artanh
ctg	cot	cth	coth	arc cth	arcoth
sec	sec	sch	sech	arc sch	arcsech
cossec	csc	csch	csch	arc csch	arcscsch

Russian      English

rot      curl  
lg      log

## OIL AND ALKYD PAINTS READY FOR USE

GOST 10503-71\*

Replaces GOST 10503-63

By decree of the State Committee of Standards of the Council of Ministers of the USSR from 5 August 1971 No. 1358 the period of introduction is established from 1 July 1972.

Nonobservance of the standard is punishable by law

This standard is extended to oil and alkyd paints ready for use, which are a suspension of pigments (or pigments and fillers) in different drying oils with the introduction of a desiccant and also of additives (Aerosil, lecithin and others), which prevent the formation of a thick sediment, or without them.

The oil and alkyd paints ready for use are intended for external and internal finishing works (with the exception of the painting of floors) and for the painting of metallic and wooden articles.

Coatings with oil and alkyd paints for external works (two coats for metal) should preserve the protective properties in a moderate climate for a year.

The paints are applied to the surface with a brush, sprayer or roller.

### 1. Brands

\*Reprint (January, 1976) with change No. 2 published in September of 1976.

1.1. The oil and alkyd paints ready for use, depending on the type of the film-forming substance and their purpose, must be produced in the following brands indicated in Table 1.

TABLE 1

Names and Brands of Paint		Film-forming substance entering into composition of paints	Main pigments and fillers entering into composition of paints
For external works	For internal works		
Zinc white MA-11	-	Natural drying oil	Drying zinc white
Zinc white MA-11N	-	"	Drying zinc white with addition of barite, talc
Zinc white MA-15	-	Combined drying oil K-3, K-5	Drying zinc white
Zinc white MA-15N	-	" "	Drying zinc white with addition of barite, talc
Zinc white GF-13	-	Glyptal drying oil	Drying zinc white
Zinc white GF-13N	-	" "	Drying zinc white with addition of barite, talc
Zinc white PF-14	-	" "	Drying zinc white
Zinc white PF-14N	-	" "	Drying zinc white with addition of barite, talc
-	Zinc white MA-22	Drying oil	Drying zinc white
-	Zinc white MA-22N	" "	Drying zinc white with addition of barite, talc, chalk
-	Lithopone white MA-21	Natural drying oil	Drying lithopone



Table 1

Names and Brands of Paint		Film-forming substance entering into composition of paints	Main pigments and fillers entering into composition of paints
For external works	For internal works		
-	Lithopone white MA-21N	Natural drying oil	Drying lithopone with addition of barite, talc, chalk
-	Lithopone white MA-25	Combined drying oil K-2, K-3, K-5, K-12	Drying lithopone
-	Lithopone white MA-25N	Combined drying oil K-2, K-3, K-5, K-12	Drying lithopone with addition of barite, talc, chalk
-	Lithopone white MA-22	Drying oil	Drying lithopone
-	Lithopone white MA-22N	Drying oil	Drying lithopone with addition of barite, talc, chalk
Colored paints MA-11	-	Natural drying oil	Drying zinc white with addition of barite, talc
Colored paints MA-15	-	Combined drying oil K-3, K-5	" " "
Colored paints GF-13	-	Glyptal drying oil	" " "
Colored paints PF-14	-	Pentaptal [sp.] drying oil	" " "
-	Colored paints MA-21	Natural drying oil	Drying lithopone, titanium dioxide pigmented of anatase form or drying zinc white, or zinc pigment with addition of barite, talc chalk

Table 1

Names and Brands of Paint		Film-forming substance entering into composition of paints	Main pigments and fillers entering into composition of paints
For external works	For internal works		
-	Colored paints MA-25	Combined drying oil K-2, K-3, K-5, K-12	[Same as above for MA-21]
-	Colored paints MA-22	Drying oil	[Same as above]
-	Colored paints KS-29	Xyptal [sp.] drying oil, 55%	[Same as above]
-	Colored paints KS-29K	70% xyptal drying oil	[Same as above]
Iron minium MA-11	-	Natural drying oil	Drying iron minium for the paint and varnish industry
Iron minium MA-15	-	Combined drying oil K-3, K-5	[Same as above]
Iron minium GF-13	-	Glyptal drying oil	[Same as above]
Iron minium PF-14	-	Pentaptal [sp.] drying oil	[Same as above]
Prussian Red MA-11	-	Natural drying oil	Natural drying Prussian red
Prussian Red MA-15	-	Natural drying oil	" "
Prussian Red GF-13	-	Glyptal drying oil	" "
Prussian Red PF-14	-	Pentaptal [sp.] drying oil	" "
Ocher MA-11	-	Natural drying oil	Drying ocher
Ocher MA-15	-	Combined drying oil K-3, K-5	" "
Ocher GF-13	-	Glyptal drying oil	" "
Ocher Pf-14	-	Pentaptal [sp.] drying oil	" "

NOTE: Index N for the zinc and lithopone white indicate the introduction of a filler of up to 25% of the pigment part.  
(Modified edition - Information Index of Standards, No. 9, 1975)

## 2. Technical Requirements

2.1 The oil and alkyd paints ready for use should be produced in the following colors: <sup>imitation</sup> ivory black, pale yellow, beige, gray, light blue, blue, yellow, pistachio, green, dark red, reddish brown, and brown for the outer coatings; light gray blue, pale lettuce green, imitation ivory black, pale yellow, light beige, beige, gray, light blue, sky blue, dark blue, yellow, lettuce green, pistachio, green, red, claret, reddish brown, brown, light turquoise, light gray, light sandy, and rose beige for coatings inside a room.

It is permitted to produce paints of other colors not provided for by this standard during a period of not more than 24 months according to the technical specifications confirmed in established order. All the indices of the paints must conform to requirements of this standard with the exception of the color and covering power, which are established by the technical specifications.

During the indicated period the paints produced according to the technical specifications and accepted for further production according to the requirement of the user must be included into the present standard.

(Modified edition - Information Index of Standards, No. 9, 1975).

2.2. The formulas of the oil and alkyd paints ready for use must be coordinated with the Ministry of Public Health of the USSR and confirmed by the Ministry of the Chemical Industry.

2.3. In the production, testing and use of the paints, the precautionary measures provided in the appropriate instructions on accident prevention must be strictly observed.

2.4. According to the physicomechanical indices, the oil and alkyd paints ready for use must conform to the requirements and standards indicated in Table 2.

[Table 2 begins on next page with the  
key at the end.]

**TABLE 2**

I Наименования показателей	II Нормы для марок																										
	III Белита цинковые					IV Белита литопонные					V Краски цветные					VI Сурик железный		VII Мумия		VIII Охра							
	МА-11	МА-15	МА-22, ГФ-13, ПФ-14	МА-11Н	МА-15Н МА-22Н, ГФ-13Н, ПФ-14Н	МА-21	МА-22	МА-25	МА-21Н	МА-22Н	МА-25Н	МА-11	МА-15	ГФ-13, ПФ-14	МА-21	МА-22, КС-29	МА-25, КС-29К	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14	
<p><b>1A.</b> Цвет пленки краски.</p> <p>Под слововую часть палевой светло-бежевой бежевой серой светло-голубой голубой синей желтой салатной фиштакковой зеленой красной темно-красной</p>	<b>1B.</b> По утвержденному образцу в пределах допусков					<b>1C.</b> Должен находиться в пределах цветов следующих номеров картотеки цветовых эталонов 912; 913 234; 971 — 923; 945 807; 812 473; 474 133; 434 — 209; 210 — 985; 986 304; 316					<b>1D.</b> По утвержденному образцу в пределах допусков 912; 913 234; 971 902; 989 923; 945 807; 812 473; 474 433; 434 455; 476 209; 210 350; 973 985; 986 304; 316 15; 19																
<p>бордо красно-коричневой коричневой светло-бирюзовой светло-серой светло-песочной розово-бежевой светло-серо-голубой</p> <p>бледно-салатный</p> <p>2) Содержание пленкообразующего вещества, %, не менее</p> <p>3) Содержание растворителя в краске, %, не более</p> <p>4) Вязкость при 20°C по вискозиметру ВЗ-4, с</p>											<p><b>С</b> Допуск по утвержденному образцу</p> <p>601; 602 619; 623 — — — — — — — — — 3; 4 601; 602 619; 623 333; 334 560; 585 993; 994 245; 276</p> <p>557; 967;</p>																
	32	30	25	30	28	24	24	20	22	21	20	22	28	26	23	24	20	22	30	27	23	32	30	25	38	34	28
	5	14	27	5	13	25	5	20	11	5	20	12	5	12	24	5	20	12	5	12	24	5	11	26	5	15	29
	65 - 140					65 - 140					65 - 140							80 - 160									

Table 2 cont'd.

I Наименования показателей	II Нормы для марок																									
	III Белла цинковые					IV Белла литовные					V Краски цветные					VI Сурик железный		VII Мумия		VIII Охра						
	МА-1	МА-1Г	МА-22, ГФ-13, ПФ-14	МА-11Н	МА-15Н, ГФ-13Н, ПФ-14Н	МА-21	МА-22	МА-25	МА-21Н	МА-22Н	МА-25Н	МА-11	МА-15	ГФ-13, ПФ-14	МА-21	МА-22, КС-29	МА-25, КС-29К	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14
5. Степень перетира методом «клина», не более	40		70		40		70		90		80									80						
6. Кривизность краски малярной консистенции, г.м <sup>2</sup> , не более:	170		200		170		190							210	210				35	95				180		
для цветных красок:																										
под слоювую кость									210		210			195	195											
палевой									85		160			130	130											
светло-бежевой									65		100			100	100											
бежевой									100		100			100	100											
серой									100		100			100	100											
светло-голубой									100		100			100	100											
голубой									100		100			100	100											
синей									100		100			100	100											
желтой									160		160			160	160											
салатной									—		140			140	140											
фисташковой									90		135			135	135											
зеленой									80		80			80	80											
красной									45		—			—	—											
темно-красной									—		100			100	100											
бордо									50		100			100	100											
красно-коричневой									65		100			100	100											
коричневой									—		170			170	170											
светло-бирюзовой									—		—			—	—											

I Наименования показателей	II Нормы для марок																									
	III Белла цинковые					IV Белла литовные					V Краски цветные					VI Сурик железный		VII Мумия		VIII Охра						
	МА-11	МА-15	МА-22, ГФ-13, ПФ-14	МА-11Н	МА-15Н, ГФ-13Н, ПФ-14Н	МА-21	МА-22	МА-25	МА-21Н	МА-22Н	МА-25Н	МА-11	МА-15	ГФ-13, ПФ-14	МА-21	МА-22, КС-29	МА-25, КС-29К	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14	МА-11	МА-15	ГФ-13, ПФ-14
светло-серой																165										
светло-песочной																235										
розово-бежевой																230										
светло-серо-голубой														130												
бледно-салатной														170												
7. Время высыхания при 20±2°C, ч, не более:																										
от «пыли»			12			10			12		12			12						12				14		
до степени 3			24			24			24		24			24						24				24		
8. Твердость пленки по маятниковому прибору, не менее			0,14			0,13			0,13		0,10			0,12						0,12				0,12		
9. Стойкость пленки к сухому облучению, ч после сушки при 18—22°C в течение 120 ч			98			Не определяют			2		2			9D						Не определяют				Не определяют		
10. Водостойкость пленки при 18—22°C, ч, не менее						0,5			0,5		0,5			0,5						0,5				0,5		

Примечания:

1. Образцы цвета красок утверждаются Министерством химической промышленности
  2. При загустевании красок допускается разбавление их уайт-спиритом (ГОСТ 3131-52) в количестве не более 5%, при этом вязкость красок должна соответствовать п. 4 табл. 2.
- (Измененная редакция - «Информ. указатель стандартов» № 9 1975 г.).

KEY to Table 2:

I. Names of indices; II. Standards for brands; III. Zinc white; IV. Lithopone white; V. Colored paints; VI. Iron minium; VII. Prussian red; VIII. Ocher. [Nomenclature such as MA-11 is the same as that in Table 1.]

1A. Color of paint film; Imitation ivory black, pale yellow, light beige, beige, gray, light blue, sky blue, dark blue, yellow, lettuce green, pistachio, green, red, dark red, claret, reddish brown, brown, light turquoise, light gray, light sandy, rose beige, light gray blue, pale lettuce green; 1B. According to the confirmed specimen within tolerances; 1C.a) Must be found within colors of following numbers of the card file of color standards; b) according to the confirmed specimen within tolerances; c) tolerance according to confirmed specimen; 1D. According to the confirmed specimen within tolerances.

2A. Content of film-forming substance in %, not less than;

3A. Content of solvent in the paint in %, not more than;

4A. Viscosity at 20°C according to the viscosimeter VZ-4 in s;

5A. Degree of wear by the "wedge" method, not more than;

6A. Covering power of paint of paint store consistency in  $g/m^2$ , not more than:

for colored paints: imitation ivory black, pale yellow, light beige, beige, gray light blue, sky blue, dark blue, yellow, lettuce green, pistachio, green, red, dark red, claret, reddish brown, brown, light turquoise, light gray, light sandy, rose beige, light gray blue, pale lettuce green.

7A. Time of drying at  $20 \pm 2^\circ C$  in hours, not more than: from "spray"; up to degree 3.

8A. Hardness of the film according to a pendulum instrument, not less than.

9A. Resistance of the film to dry exposure in hours after drying at 18-22°C for 120 hours.

9B. Not determined.

9D. Not determined.

10A. Water resistance of the film at 18-22°C in hours, not less than.

Notes [to Table 2]:

1. Samples of the color of the paints are confirmed by the Ministry of the Chemical Industry.

2. With the thickening of the paints, thinning of them is allowed with white spirit (GOST 3134-52) in an amount of not more than 5%, and the viscosity of the paints must conform to item No. 4 of Table 2.

(Modified edition - Information Index of Standards, No. 9, 1975.

### 3. Acceptance Rules

3.1. To check the quality of the paint for the conformity of its indices to requirements of this standard, rules of sampling and methods of tests indicated below must be used.

3.2. In checking the quality, select the sample of paint in conformity to GOST 9980-75.

3.3. For a batch take the quantity of the paint of one brand and one color obtained for one industrial process and accompanied by one document on quality.

### 4. Methods of tests

#### 4.1 Preparation of the specimens for the test.

The color of the film, time of drying, water resistance, and resistance of the film to the dry exposure are determined on plates with a dimension of 70 X 150 mm of steel (GOST 9045-70, GOST 16523-70 of brand 08kp and 08ps) or of polished sheet steel (GOST 1127-72) with a thickness of 0.25-0.32 mm. The hardness of the film is determined on glass plates (GOST 8832-58\*, section II). The plates for the application of the coatings are prepared in conformity with GOST 8832-58\* (section III). [See note \*, next page.]

Before the test the paint is stirred, diluted with white spirit to a viscosity of 65-80 St according to viscosimeter VZ-4, filtered through a sieve with a mesh of No. 056 K (GOST 3584-73), and applied with a brush to the prepared plates. To determine the time of the drying and hardness, the paint is applied with one coat, and to determine the water resistance and resistance to dry exposure, two coats are applied. In determining the color, the paint is applied up to the complete covering of the base layer. Each coat of paint is dried at 18-22°C for 24 hours. In the

determination of the resistance of the film of the paint to dry exposure, the first coat of paint is dried at 18-22°C for 24 hours and the second coat, at 18-22°C for 120 hours.

The thickness of the single-layered coat after drying should be 25-35 μm and of the two-layered coat, 50-60 μm.

4.2. The color of the film of the paint is determined visually with the natural scattering of light, by a comparison of the pigment with the card of the card file of the color standards, or with the confirmed specimen.

4.3. Determination of the content of the film-forming substance and solvent

The content of the film-forming substance (X) in percent is computed according to formula

$$X = 100 - (X_1 + X_2)$$

where:

$X_1$  is the content of the hard substance in the paint in %; it is determined in conformity with GOST 17537-72, using as the solvent acetone or a mixture of acetone with ethyl alcohol in the ratio of 3 : 2 in volume;

$X_2$  - the content of the paint vehicle in the paint in %; it is determined in conformity with GOST 17537-72.

4.4. Viscosity of the paint is determined by the viscosimeter VZ-4 in conformity with GOST 8420-74.

4.5 The degree of wear is determined by the "wedge" method in conformity with GOST 6589-74 according to the limit of visible individual aggregates.

4.6. The covering power of the paint of paint store consistency is determined in conformity with GOST 8784-75 on a glass plate.

4.7. The drying time is determined in conformity with GOST 19007-73, and for paints of brand MA-22 and MA-22N (on drying oil of brand PV) a trace on the area of the load is allowed in

\*Since 1 January 1977 GOST 8832-76 has been introduced.



determining the drying time up to degree 3.

(Modified edition - Information Index of Standards, No. 9,

4.8. Hardness of the film is determined in conformity with GOST 5233-67.

4.9. Determination of the resistance of the film to dry exposure

The specimen prepared according to item 4.1 is covered by 1/3 with a light-impenetrable black paper and placed under a mercury quartz lamp of brand PRK-2 at a distance of 35 cm from the lamp. The steady-state mode of the lamp must be: a voltage of  $120 + 6$  V and a current of  $3.75 \pm 0.25$  A.

An exposure of 2 hours is produced, after which with the day-time scattered light the exposed part of the coat is compared with the coat which with exposure was covered with black paper.

An insignificant change in the color and an insignificant tarnishing of the film of the paint are allowed.

4.10. Determination of the water resistance of the film

The specimen prepared according to item 4.1 is placed into distilled water (GOST 6709-72) up to 2/3 of the height and held at  $20 \pm 2^\circ\text{C}$  for 0.5 hours. Then the plates are removed, dried with filter paper, exposed in air at  $20 \pm 2^\circ\text{C}$  for 2 hours, and examined by the naked eye. The film must not be broken, flaked off, wrinkled up, and blistered. An insignificant tarnishing and insignificant change in color of the paint's film are allowed.

5. Packing, marking, transporting, and storage

5.1. The packing, marking, transporting, and storage of the paints ready for use are carried out in conformity with GOST 9980-75. The paints delivered to the trade network are packed in metal cans (GOST 6128-75) with a capacity of 0.5 to 3 liters or in a container made of polyethelene and are set in wooden boxes per GOST 18573-73 or boxes of corrugated cardboard (GOST 13841-68).

The retail value must be additionally indicated on the label of the paint delivered to the trade network.

6. Guarantee of manufacture

6.1. The oil and alkyd paint ready for use must be inspected

by the technical inspector of the manufacture. The manufacture must guarantee the conformity of the paint to requirements of this standard with observance by the use of conditions of transporting and storage established by the present standard.

6.2. The guaranteed period of storage is 6 months from the day of manufacture.

Upon expiration of the indicated period, before use the paint is tested and considered fit if after its thinning it conforms in all the remaining indices to requirements of this standard.

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Replacement

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GOST 1127-72 is introduced in place of GOST 1127-57.

GOST 3584-73 " " " " " GOST 3584-53.

GOST 6128-75 " " " " " GOST 6128-67.

GOST 6589-74 " " " " " GOST 6589-57.

GOST 6709-72 " " " " " GOST 6709-53.

GOST 8420-74 " " " " " GOST 8420-57.

GOST 9045-70 " " " " " GOST 914-56 in the part of the sheets of very deep drawing.

GOST 9980-75 is introduced in place of GOST 9980-62.

GOST 16523-70 " " " " " GOST 914--56, except for sheets of very deep drawing.

GOST 17537-72 is introduced in place of GOST 6059-51 and GOST 6989-54.

GOST 18573-73 " " " " " GOST 8872-63 in the part of the cases for the chemical industry.

GOST 1900-73 is introduced in place of OST 10086-39, in part M.I. 17.

DISTRIBUTION LIST

DISTRIBUTION DIRECT TO RECIPIENT

<u>ORGANIZATION</u>	<u>MICROFICHE</u>	<u>ORGANIZATION</u>	<u>MICROFICHE</u>
A205 DMATC	1	E053 AF/INAKA	1
A210 DMAAC	2	E017 AF/RDXTR-W	1
B344 DIA/RDS-3C	9	E403 AFSC/INA	1
C043 USAMIIA	1	E404 AEDC	1
C509 BALLISTIC RES LABS	1	E408 AFWL	1
C510 AIR MOBILITY R&D LAB/FIO	1	E410 ADTC	1
C513 PICATINNY ARSENAL	1	FTD	
C535 AVIATION SYS COMD	1	CCN	1
C591 FSTC	5	ASD/FTD/NIIS	3
C619 MIA REDSTONE	1	NIA/PHS	1
D008 NISC	1	NIIS	2
H300 USAICE (USAREUR)	1		
P005 DOE	1		
P050 CIA/CRB/ADG/SD	2		
NAVORDSTA (50L)	1		
NASA/NST-44	1		
AFIT/LD	1		
ILL/Code L-389	1		
NSA/1213/TDL	2		