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FEDERAL STANDARD

COLORS

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FEDERAL STANDARD

COLORS

1-968

FEDERAL STANDARD NO. 595

March 1, 1956

SUPERSEDING

Fed. Spec. TT-C-595

January 12, 1950

FEDERAL STANDARD NO. 595**COLORS**

Authority.—This standard is issued pursuant to the Federal Property and Administrative Services Act of 1949, as amended, and its application to the purchase of commodities referred to herein is mandatory on all Federal agencies.

S1. PURPOSE AND SCOPE

S1.1 The purpose of this standard is to present in convenient form a collection of standard colors currently used by the various departments of the Government (see S6.1). These standard colors, identified by 5-digit numbers, are defined by fundamental colorimetric data. For reference purposes, each color is approximately reproduced herein. For procurement, inspection and other color matching purposes, 3 x 5 inch color chips are issued as a supplement. These chips are identified by the same 5-digit numbers.

S2. APPLICABLE SPECIFICATIONS

S2.1 The following Federal Specification, of the issue in effect on date of invitation for bids, forms a part of this standard:

TT-P-141—Paint, Varnish, Lacquer, and Related Materials;
Methods of Inspection, Sampling and Testing.

(Activities outside the Federal Government may obtain copies of Federal Specifications and Standards as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.)

S3. CLASSIFICATION AND NUMBERING SYSTEM

S3.1 Color classification.—The colors have been classified in three main groups depending upon the specular gloss. These three groups are designated gloss, semi-gloss, and lusterless (or flat). A color may appear in more than one of the color groups. Within each gloss group, the colors are further arranged in 8 arbitrarily selected color classification groups, and within the latter groups in the order of approximate increasing diffuse reflectance.

S3.2 Numbering system.—The 5-digit numbering system used for the colors is based on the assignment of numerals which indicate the following:

The first digit indicates the gloss of a color; 1—gloss; 2—semi-gloss; 3—lusterless.

The second digit indicates the selected color classification group.

The last three digits indicate the approximate order of increasing diffuse reflectance and are assigned nonconsecutively to provide numbers between the colors for future use.

Where a color appears in more than one gloss range, the last four digits will be the same. The system thus permits the addition of new colors to be inserted, without destroying the pro-

gression of colors from dark to light and further permits a convenient method of identifying a color in other gloss ranges when more than one range is desired. For example; numbers 16555, 26555, and 36555 identifies a light gray color in all three gloss ranges. This system and color table index is shown in table I.

TABLE 1. Classification and numbering of colors.

Selected color classification ¹	Gloss	Semi-gloss	Lusterless
Table II	10000	20000	30000
Table III	11000	21000	31000
Table IV	12000	22000	32000
Table V	13000	23000	33000
Table VI	14000	24000	34000
Table VII	15000	25000	35000
Table VIII	16000	26000	36000
Table IX	17000	27000	37000

¹Selected color classification is an arbitrary grouping of "reds", "grays", "miscellaneous", etc.

S4. FUNDAMENTAL STANDARD AND MEASUREMENT OF COLOR

S4.1 Fundamental standard of color.—Each color, now identified by the assigned 5-digit number, is defined by spectrophotometric measurements and secondarily identified by the International Commission on Illumination (CIE) coordinate system. Each 3 x 5 inch chip shall be manufactured within a tolerance of not more than 0.5 N. B. S. unit from the standard and shall have the secondary identification data printed on the enclosing envelope.

S4.2 Measurement of color.

S4.2.1 Fundamental measurement.—The spectrophotometer shall be recognized as the basic measuring instrument for the fundamental standardization of color.

S4.2.2 Secondary measurement.—Color standards computed from spectrophotometric data shall be found by means of the

standard observer and co-ordinate system adopted in 1931 by the CIE in accordance with method 425.1 of Federal Specification TT-P-141.

S4.2.3 Measurement of gloss.—Gloss shall be measured in accordance with method 610.1 of Federal Specification TT-P-141.

S5. USE OF COLOR CHIPS

S5.1 Care of colors.—While the attempt has been made to obtain colors that are fairly stable, all colors will change with time and some will tend to change more than others. Exposure to strong sunlight shall be avoided, and the colors shall be kept covered when not in use. Care shall also be exercised that the chips do not become soiled. Each 3 x 5 inch chip shall be kept in an envelope for protection.

S5.2 Color matching.—Conformity of color of paint or other material supplied to correspond to any of these numbered colors shall be determined by visual comparison with the standard color chip (3 x 5 inch) of the same number. The fundamental colorimetric data (chromaticity coordinates and luminous factor) are recorded to permit the colors to be correlated with other working standards that are also specified on a fundamental basis, and to make possible a re-issue of the same colors.

S5.3 Visual comparison with color chips.—In comparing visually the color of a paint sample or other material with the 3 x 5 inch chip, method 423.1 of Federal Specification TT-P-141 shall be followed. Panel preparation shall be followed only where applicable. For referee purposes, the panel or sample and the chip shall be placed beside each other on a table in front of a window exposed to the north sky so that the illumination centers on an angle of about 45° and the viewing is nearly normal to the surfaces compared. To prevent appreciable quantities of extraneous light from reaching the sample, nearby bright walls and ceilings shall be covered with black cloth, and all other lights in the room not screened from the inspection area shall be turned off.

S6. NOTES

S6.1 Applicability.—These color standards are intended for use for procurement of paints or other materials only as specified or referenced in individual material specifications, handbooks, procurement documents, or other authorizing directives. For color matching purposes, only fresh clean 3 x 5 inch chips, originally manufactured within 0.5 N.B.S. units of the standard, which have not appreciably changed color, should be used. Matching chips other than the above will usually result in rejection of the material. This standard has not been compiled with reference to color harmony, special color effects, or similar considerations and any such use should only be made with the assistance of qualified color consultants.

S6.2 Availability of color chips.—The individual 3x5 inch chips are available from General Services Administration Business Service Center, Region 3, Washington 25, D. C. Price 5 cents.

Sets consisting of one each of the 358 chips — Price \$15.00.

S6.3 Dispute on color chips.—If there is doubt at any time regarding the conformity of the color of a 3 x 5 inch chip to the specifications printed on its reverse side, the specifications may be determined by the methods of section S5 by a qualified laboratory.

Copies may be purchased for \$2.25 each from the General Services Administration, Business Service Center, Region 3, Washington 25, D. C.

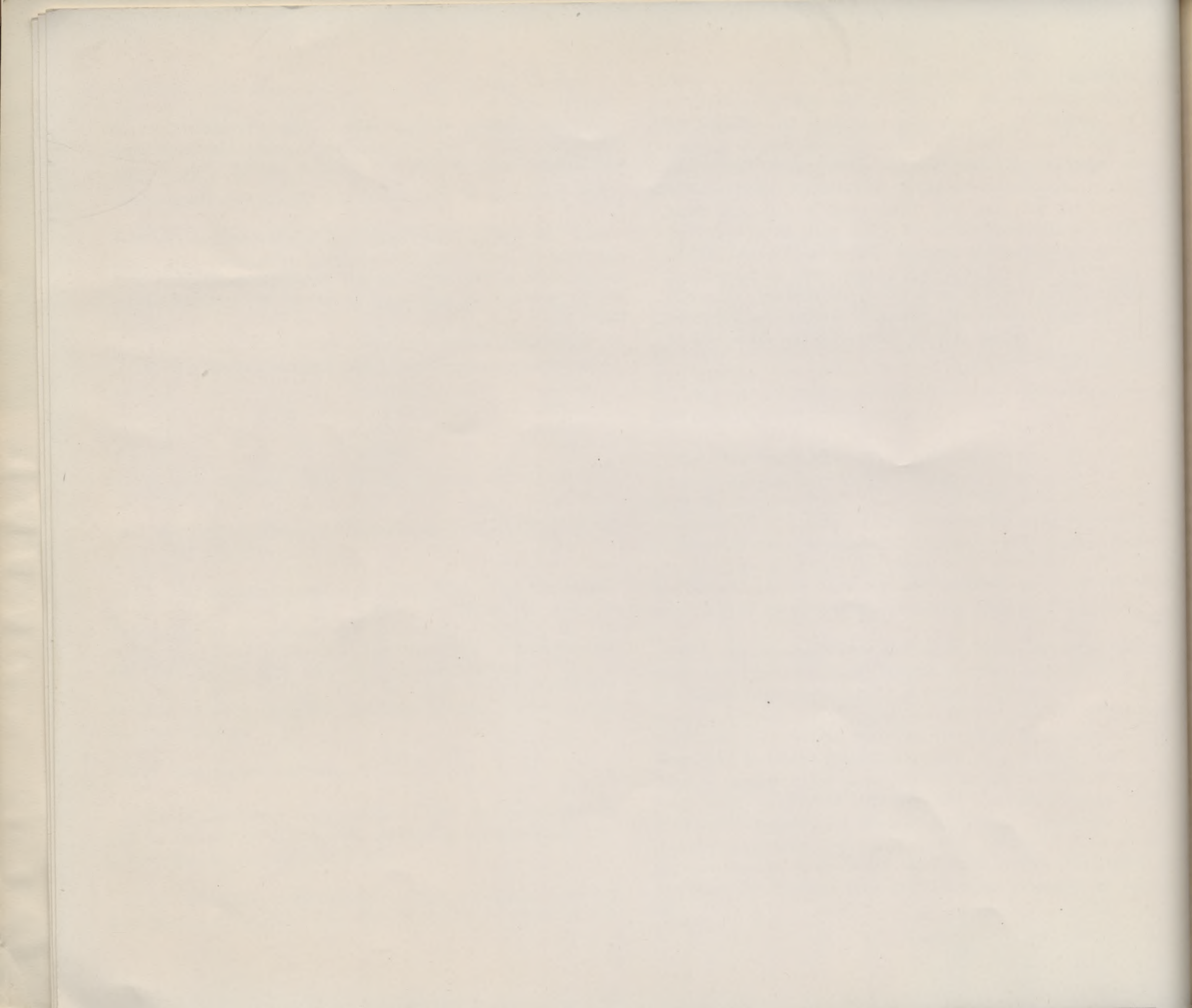




TABLE II

GLOSS

	
10032	10045
	
10049	10075
	
10076	10080
	
10091	10219
	
10233	10266
	
10324	10371

SEMI-GLOSS

		
20045	20059	20061
		
20062	20109	20140
		
20206	20219	20227
		
20233	20252	20313
		
20318	20372	20400
		
20450		

LUSTERLESS

		
30045	30099	30109
		
30111	30117	30118
		
30140	30206	30219
		
30227	30233	30252
		
30257	30266	30277
		
30279	30313	30318
		
30324	30372	30450



TABLE II

GLOSS

	
10032	10045
	
10049	10075
	
10076	10080
	
10091	10219
	
10233	10266
	
10324	10371

SEMI-GLOSS

		
20045	20059	20061
		
20062	20109	20140
		
20206	20219	20227
		
20233	20252	20313
		
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20450		

LUSTERLESS

		
30045	30099	30109
		
30111	30117	30118
		
30140	30206	30219
		
30227	30233	30252
		
30257	30266	30277
		
30279	30313	30318
		
30324	30372	30450

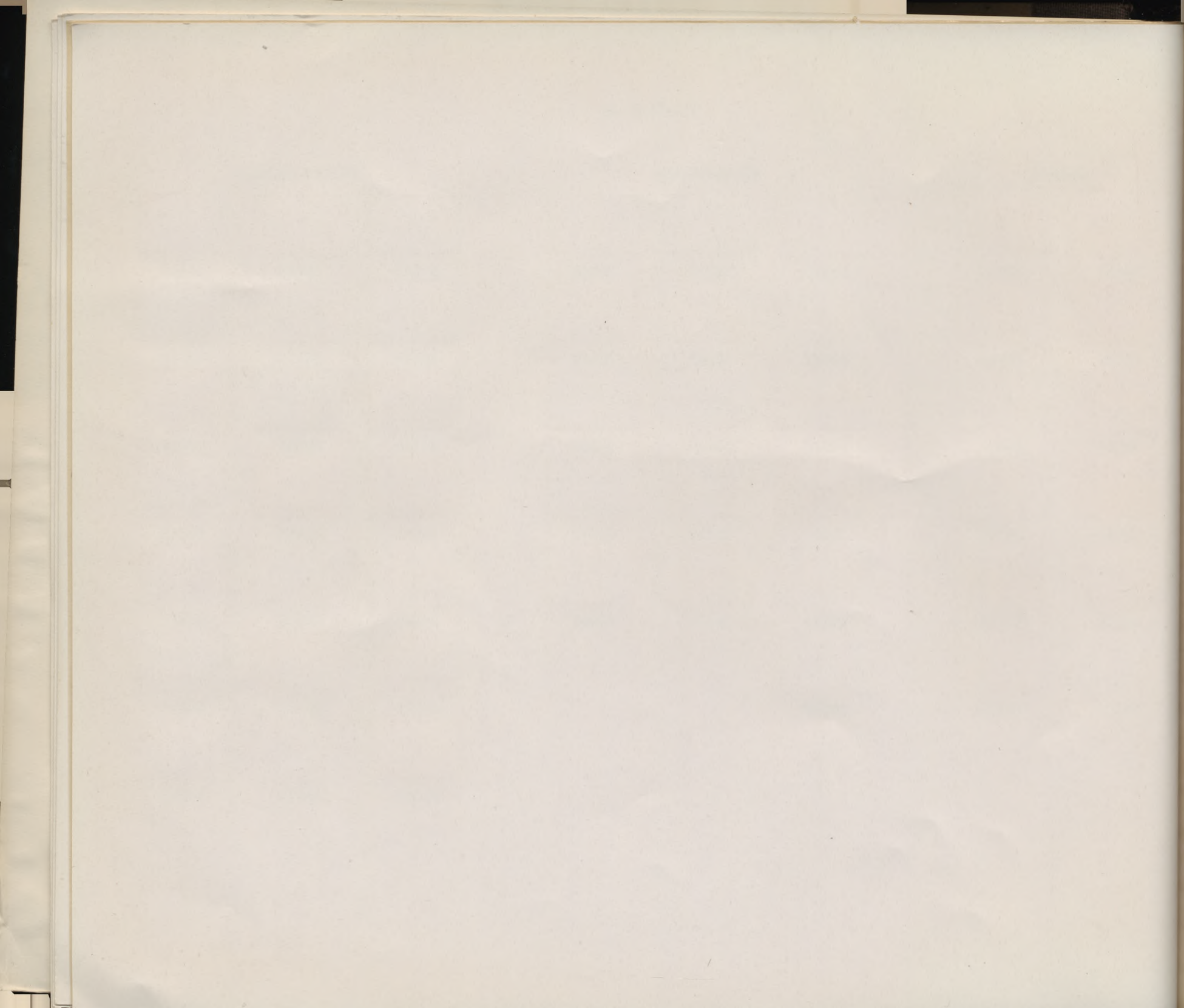
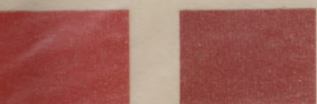


TABLE III

GLOSS



11105

11136



11670

SEMI-GLOSS



21105

21136

21158



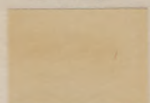
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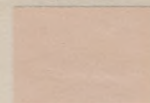
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21643



21667



21668



21670

LUSTERLESS



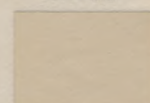
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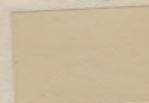
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31575



31643



31667



31668



31670

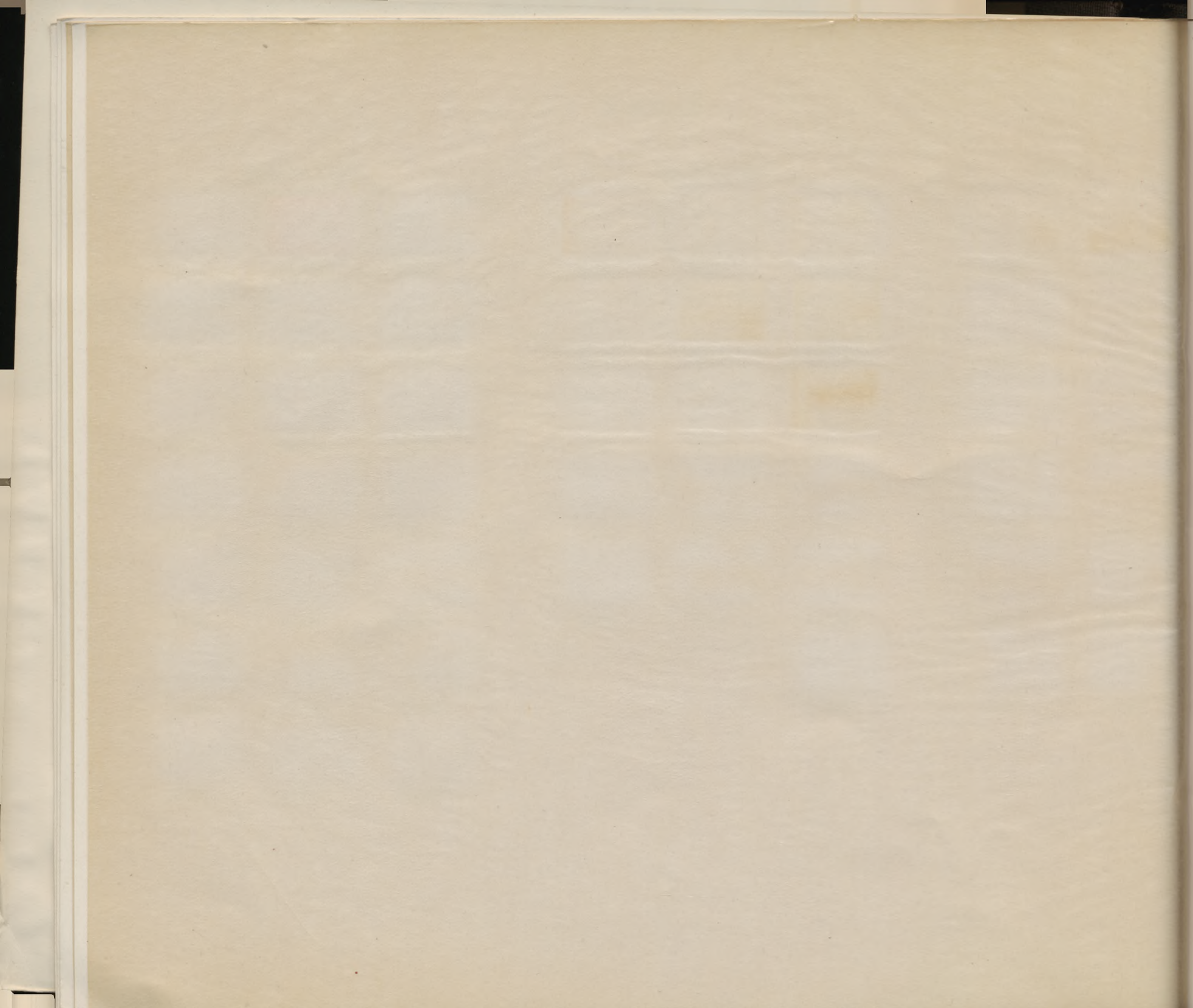


TABLE III

GLOSS

SEMI-GLOSS

LUSTERLESS

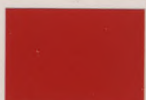

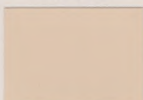
							
11105	11136	21105	21136	21158	31136	31158	31433
							
11670		21433	21575	21643	31575	31643	31667
							
		21667	21668	21670	31668	31670	



TABLE IV

GLOSS



12197

12215



12246

12648

SEMI-GLOSS



22144

22203

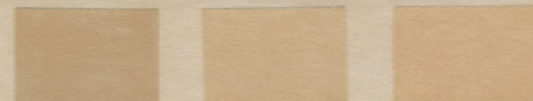
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22276

22356

22519



22563

22630

22648

LUSTERLESS



32169

32246

32276



32356

32630

32648



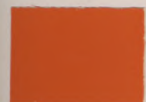
TABLE IV

GLOSS

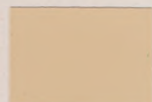


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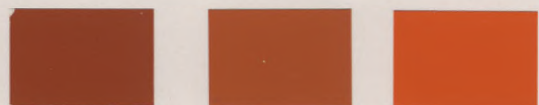


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12648

SEMI-GLOSS



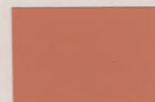
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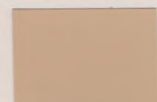
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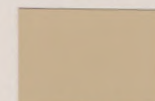
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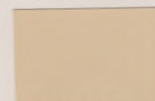
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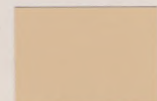
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22563

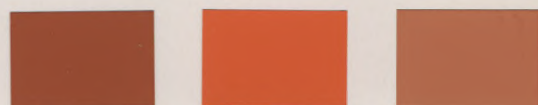


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22648

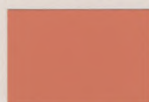
LUSTERLESS



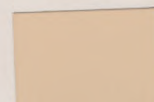
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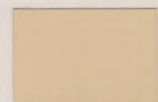
32276



32356



32630



32648



TABLE V

GLOSS

SEMI-GLOSS

LUSTERLESS

							
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13523	13531	23578	23594	23613	33538	33578	33613
							
13538	13578	23617	23619	23655	33617	33690	33695
							
13594	13613	23690	23695	23711	33711	33717	33722
							
13618	13655	23717	23722	23727	33727	33793	33814
							
13690	13695	23793	23814				
							
13711							



TABLE V

GLOSS

	
13432	13522
	
13523	13531
	
13538	13578
	
13594	13613
	
13618	13655
	
13690	13695
	
13711	

SEMI-GLOSS

		
23522	23531	23538
		
23578	23594	23613
		
23617	23619	23655
		
23690	23695	23711
		
23717	23722	23727
		
23793	23814	

LUSTERLESS

		
33434	33481	33531
		
33538	33578	33613
		
33617	33690	33695
		
33711	33717	33722
		
33727	33793	33814



TABLE VI

GLOSS

	
14036	14052
	
14056	14062
	
14064	14077
	
14087	14110
	
14158	14159
	
14187	14223
	
14241	14260

SEMI-GLOSS

		
24052	24064	24087
		
24091	24108	24148
		
24158	24159	24172
		
24201	24226	24227
		
24233	24241	24260
		
24272	24277	24300
		
24325	24373	24410





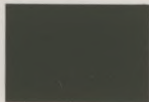

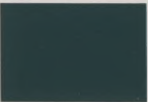



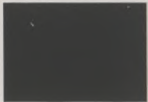
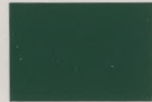

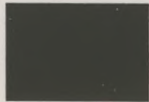





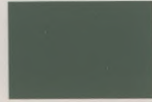
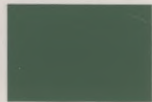
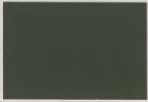

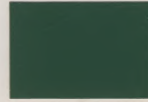

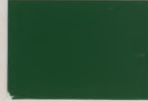

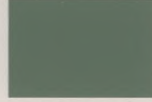
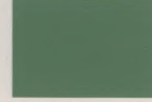


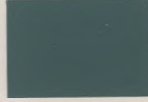
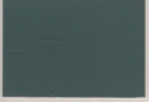
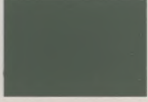
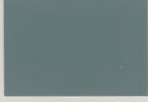
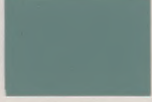

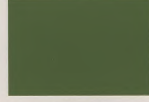
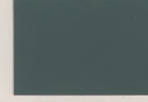
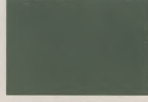

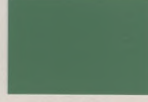
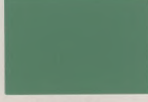
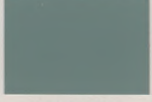
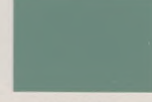
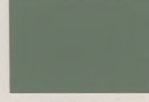
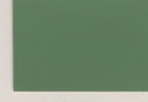
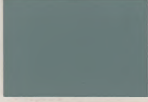
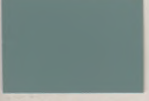

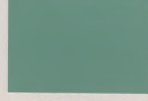

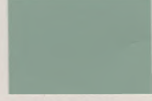
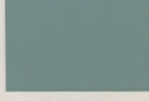
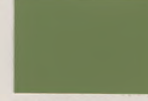
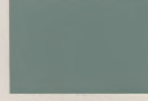
LUSTERLESS

		
34052	34058	34079
		
34086	34087	34092
		
34096	34102	34108
		
34127	34128	34148
		
34151	34158	34159
		
34226	34227	34233
		
34241	34258	34277

Continued on Next Page



TABLE VI

GLOSS		SEMI-GLOSS			LUSTERLESS		
							
14036	14052	24052	24064	24087	34052	34058	34079
							
14056	14062	24091	24108	24148	34086	34087	34092
							
14064	14077	24158	24159	24172	34096	34102	34108
							
14087	14110	24201	24226	24227	34127	34128	34148
							
14158	14159	24233	24241	24260	34151	34158	34159
							
14187	14223	24272	24277	24300	34226	34227	34233
							
14241	14260	24325	24373	24410	34241	34258	34277

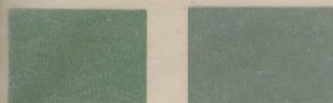
Continued on Next Page



TABLE VI

Continued from Preceding Page

GLOSS



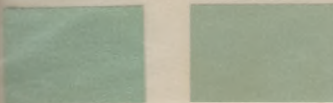
14272

14277



14325

14449



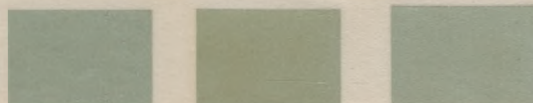
14491

14516



14533

SEMI-GLOSS



24417

24424

24432



24441

24449

24466



24491

24504

24516



24518

24525

24533



24552

24554

24583



24664

24670

24672

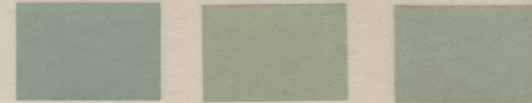
LUSTERLESS



34300

34325

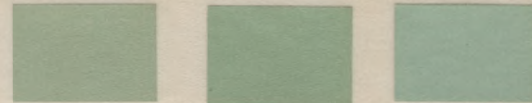
34373



34410

34424

34432



34441

34449

34491



34504

34516

34518



34524

34533

34552



34554

34558

34583



34670

34672

TABLE VI

Continued from Preceding Page

GLOSS

	
14272	14277
	
14325	14449
	
14491	14516
	
14533	

SEMI-GLOSS

		
24417	24424	24432
		
24441	24449	24466
		
24491	24504	24516
		
24518	24525	24533
		
24552	24554	24583
		
24664	24670	24672

LUSTERLESS

		
34300	34325	34373
		
34410	34424	34432
		
34441	34449	34491
		
34504	34516	34518
		
34524	34533	34552
		
34554	34558	34583
		
34670	34672	



TABLE VII

GLOSS

	
15042	15044
	
15045	15080
	
15102	15123
	
15177	15193
	
15526	

SEMI-GLOSS

		
25042	25053	25102
		
25109	25177	25184
		
25189	25193	25237
		
25299	25352	25414
		
25526	25622	

LUSTERLESS

		
35042	35044	35109
		
35164	35177	35189
		
35193	35231	35237
		
35299	35352	35414
		
35526	35622	



TABLE VII

GLOSS

	
15042	15044
	
15045	15080
	
15102	15123
	
15177	15193
	
15526	

SEMI-GLOSS

		
25042	25053	25102
		
25109	25177	25184
		
25189	25193	25237
		
25299	25352	25414
		
25526	25622	

LUSTERLESS

		
35042	35044	35109
		
35164	35177	35189
		
35193	35231	35237
		
35299	35352	35414
		
35526	35622	

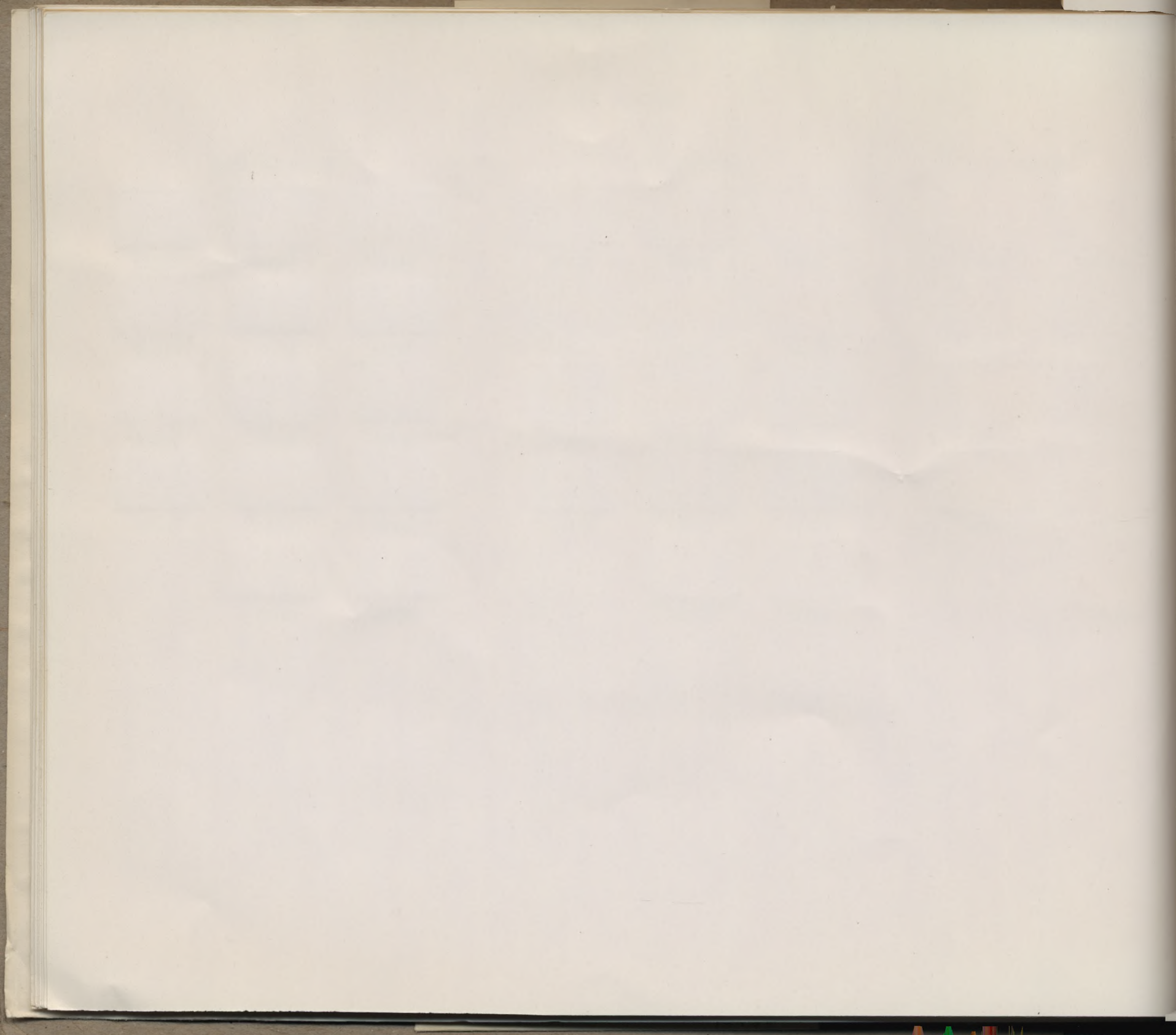
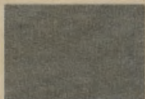

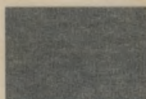



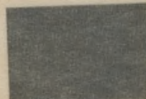
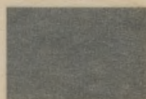
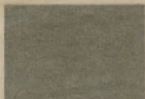
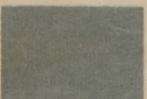
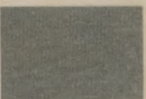
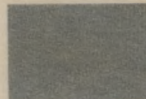
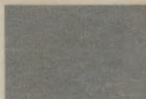
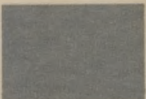
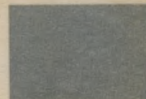
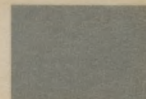
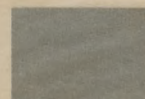
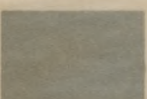
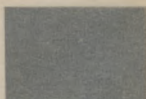
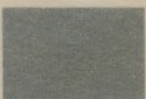
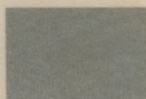
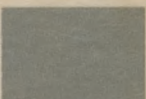
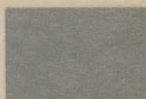

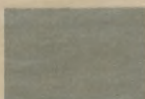

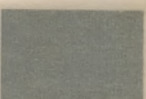
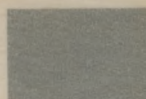
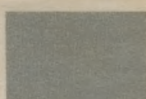
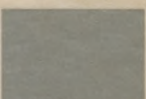
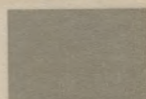
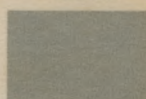


TABLE VIII

GLOSS		SEMI-GLOSS			LUSTERLESS		
							
16081	16099	26044	26081	26132	36076	36081	36118
							
16165	16187	26134	26152	26173	36173	36176	36231
							
16251	16307	26176	26187	26231	36251	36270	36280
							
16314	16357	26250	26251	26280	36293	36306	36307

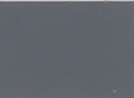
Continued on Next Page

TABLE VIII

GLOSS

	
16081	16099
	
16165	16187
	
16251	16307
	
16314	16357

SEMI-GLOSS

		
26044	26081	26132
		
26134	26152	26173
		
26176	26187	26231
		
26250	26251	26280

LUSTERLESS

		
36076	36081	36118
		
36173	36176	36231
		
36251	36270	36280
		
36293	36306	36307

Continued on Next Page

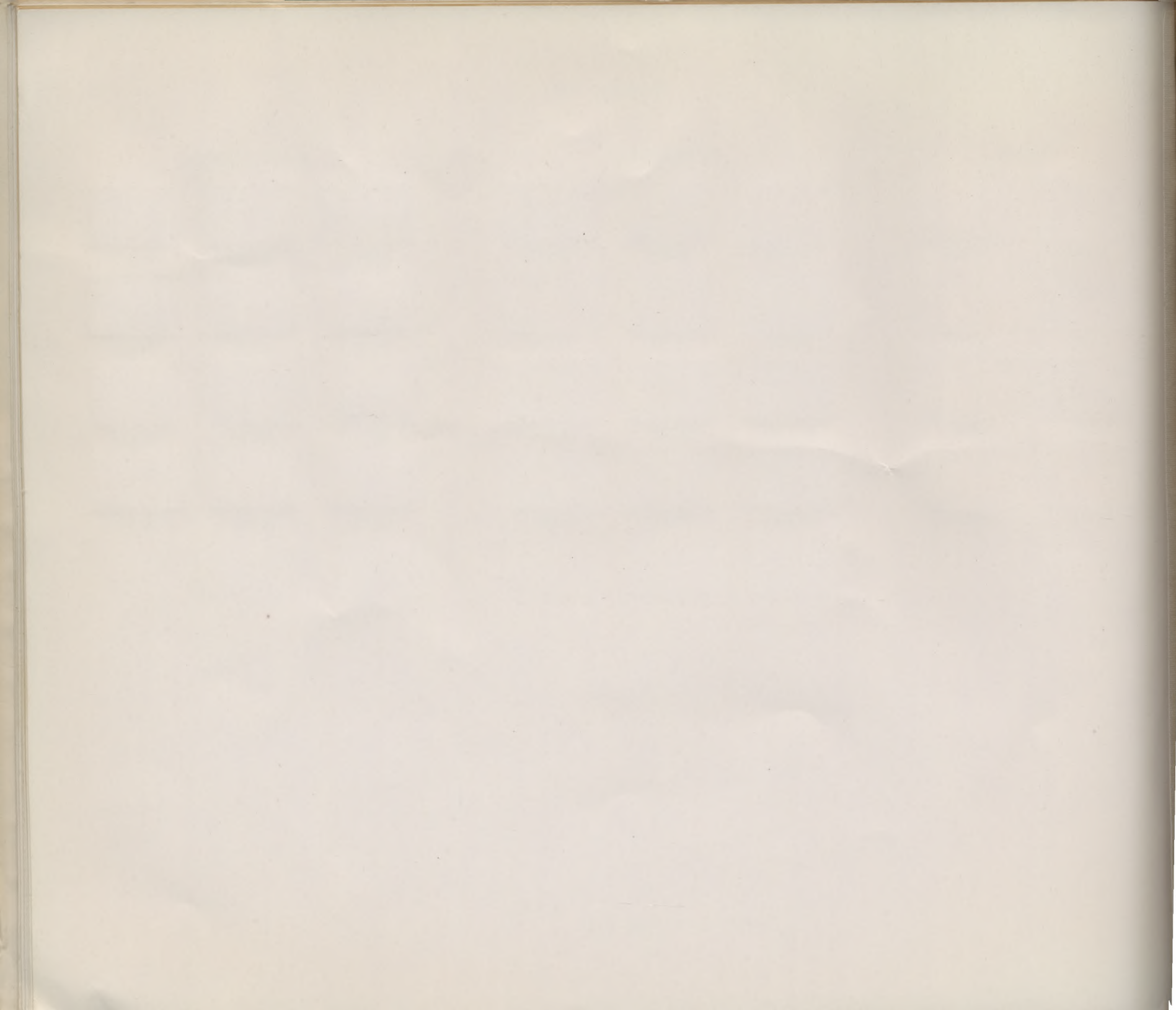


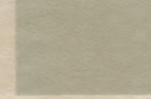
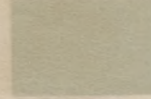
TABLE VIII

Continued from Preceding Page

GLOSS

	
16376	16440
	
16473	16492
	
16555	

SEMI-GLOSS

		
26293	26306	26307
		
26314	26329	26357
		
26373	26440	26492
		
26496	26521	26555
		
26559	26586	26595
		
26622		

LUSTERLESS

		
36314	36357	36373
		
36440	36463	36492
		
36521	36555	36559
		
36586	36595	36622



TABLE VIII

Continued from Preceding Page

GLOSS

	
16376	16440
	
16473	16492
	
16555	

SEMI-GLOSS

		
26293	26306	26307
		
26314	26329	26357
		
26373	26440	26492
		
26496	26521	26555
		
26559	26586	26595
		
26622		

LUSTERLESS

		
36314	36357	36373
		
36440	36463	36492
		
36521	36555	36559
		
36586	36595	36622

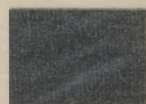


TABLE IX

GLOSS

SEMI-GLOSS

LUSTERLESS



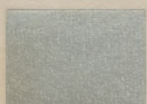
17038



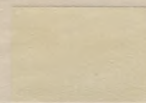
17043



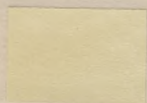
17142



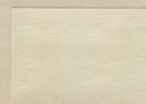
17178



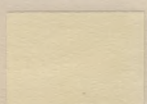
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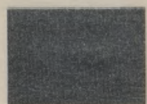
17855



17875



17886



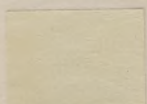
27038



27142



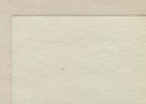
27144



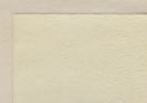
27778



27855



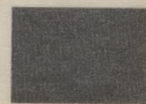
27875



27886



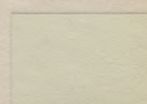
37038



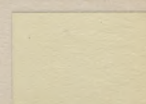
37056



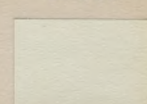
37144



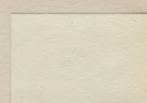
37778



37855



37875



37886

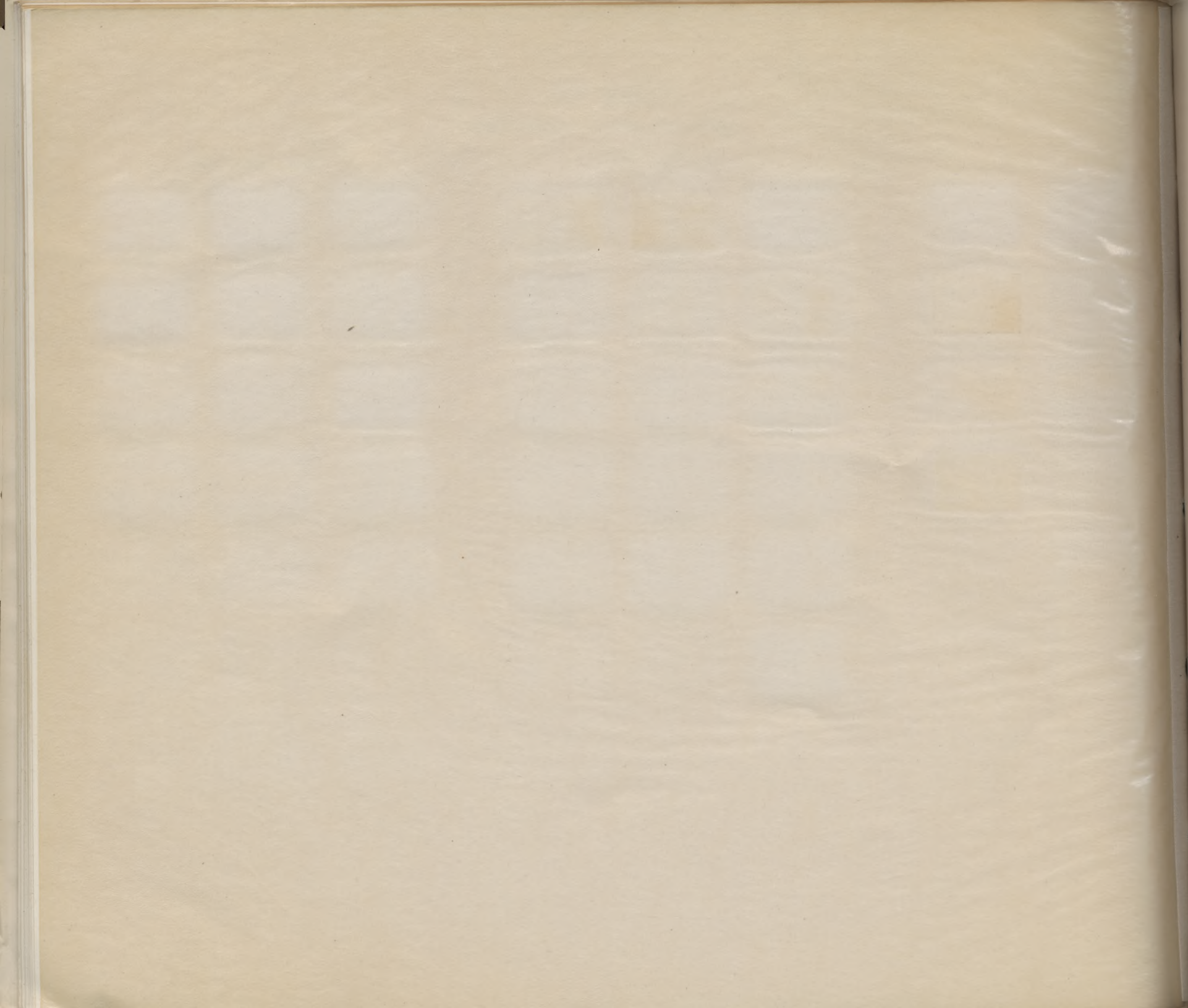


TABLE IX

GLOSS



SEMI-GLOSS



LUSTERLESS



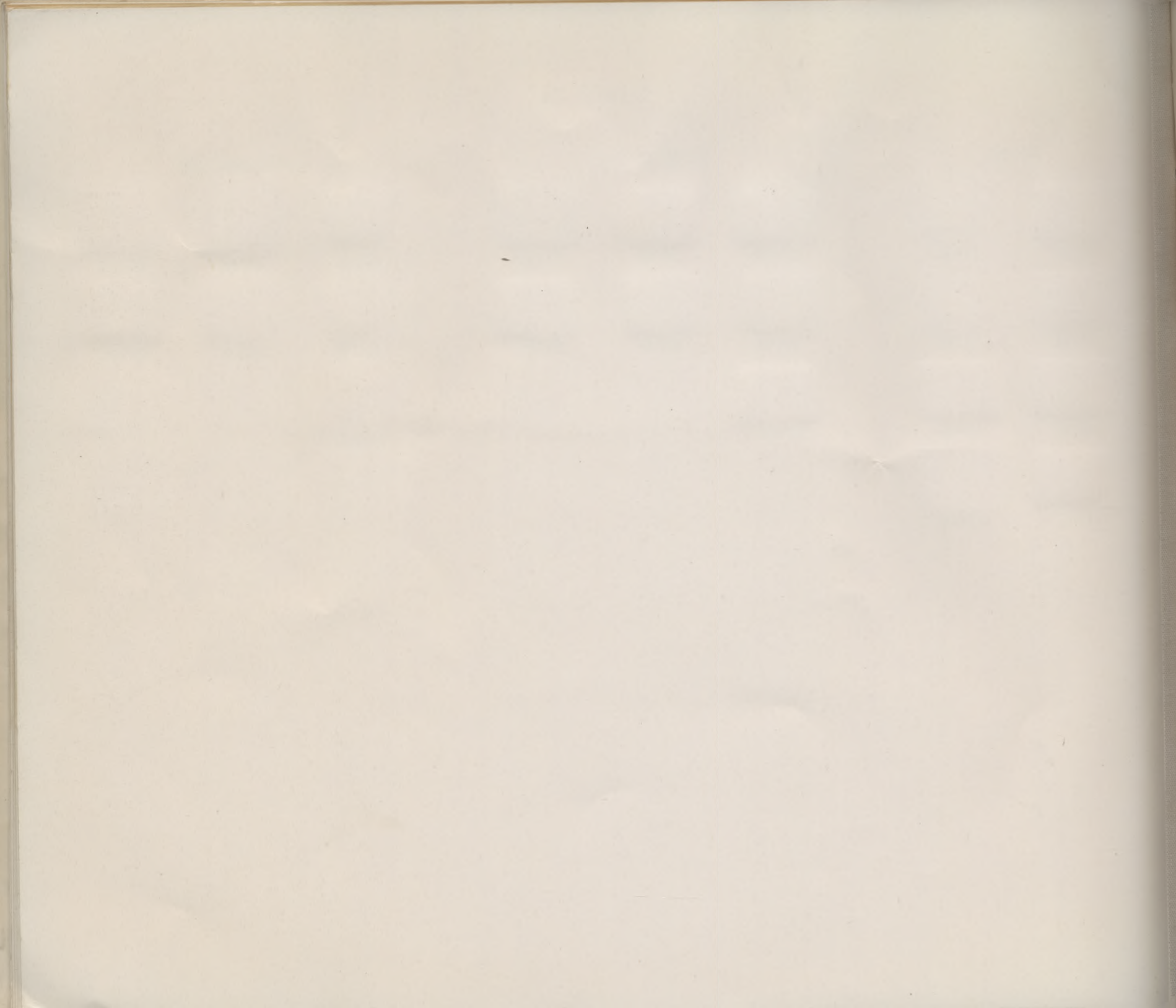


TABLE X
AVIATION SURFACE COLORS

COLOR	GLOSS	SEMI-GLOSS	LUSTERLESS
Aviation Red	11105	21105	.....
Aviation Orange	12197	.....	.....
Aviation Yellow	13538	23538	33538
Aviation White	17875	27875	37875
Aviation Black	17038	27038	37038

TABLE XI.—Safety Colors

COLOR	GLOSS	SEMI-GLOSS	LUSTERLESS
RED	11105	21105	.....
ORANGE	12246	22246	32246
YELLOW	13655	23655	.....
GREEN	14260	24260	.....
BLUE	15102	25102	.....
MAGENTA	17142	27142	.....
WHITE	17875	27875	37875
BLACK	17038	27038	37038

TABLE XII.—Cross-Reference

GLOSS		SEMI-GLOSS		LUSTERLESS	
OLD 595	NEW 595	OLD 595	NEW 595	OLD 595	NEW 595
* 1005	10032	* 2005	20059	3005	30118
1010	² 10049	* 2010	20061	3010	30099
1015	² 10049	2105	21136	* 3015	30111
* 1020	10076	* 2110	22203	3020	30117
1025	¹ 22144	2205	22246	3025	30279
1105	11136	2305	.....	3030	30324
1110	11105	* 2310	20400	3035	30227
1205	12197	2315	23538	3040	{ ² 33617 ² 36555

GLOSS		SEMI-GLOSS		LUSTERLESS	
OLD 595	NEW 595	OLD 595	NEW 595	OLD 595	NEW 595
1210	12246	2320	23594	3105	30109
* 1305	13432	2325	23695	3110	30252
1310	² 13538	2330	21670	3115	31136
1315	² 13538	2405	24108	3205	32246
1320	13655	* 2410	24272	3305	33538
* 1325	13618	2415	24533	3310	33434
1330	13695	2420	.....	3315	33481
1335	13613	* 2425	24525	3320	30266
1405	14087	2430	24087	3325	30277
1410	14064	* 2435	24172	3330	30257
1415	14052	2440	.....	3335	.....
* 1420	14056	2445	24201	3340	.....
* 1425	14036	2505	25042	3345	.....
1430	.....	* 2510	25053	3350	.....
1435	.....	2515	25109	3355	33695
1440	14062	2520	25193	3360	{ ² 33711 ² 33717
* 1445	14110	2525	24491	3365	31668
1450	14159	2605	26132	3370	32648
1455	.....	2610	26152	3375	31670
1460	14187	2615	26173	* 3403	34086
1465	.....	2620	26176	3406	34079
1470	.....	* 2625	26250	3409	34092
1475	14260	2630	26231	3412	34087
1480	14272	2635	26251	3415	34128
1485	.....	* 2640	26329	3418	34102
1505	15042	2645	26357	3421	34108
1510	15044	2650	26306	3424	.....
1515	.....	2655	² 26555	3427	34227
1520	15102	2660	² 26555	3430	34151
1525	15123	2705	27855	3433	34258
1530	15177	2710	27038	3436	34127
1535	15193	2715	27144	3439	.....
* 1605	16165	.....	.....	* 3442	² 34449
1610	16081	.....	.....	3445	34491
1615	² 16187	.....	.....	3448	34533
1620	14158	.....	.....	* 3451	34524

TABLE XII.—Cross-Reference—(Cont.)

GLOSS		SEMI-GLOSS		LUSTERLESS	
OLD 595	NEW 595	OLD 595	NEW 595	OLD 595	NEW 595
1625	² 16187			3454	34424
1630	² 16307			3457	.....
1635	.....			* 3460	34558
* 1640	16376			3463	.....
1645	16473			3466	34672
1650	² 16307			3469	¹ 24664
1655	16357			3505	35044
1660	.....			3510	35042
1665	.....			3515	34158
1705	¹ 20062			3520	² 36231
* 1710	10080			3525	35164
1715	.....			3530	35109
1720	10219			3535	35231
1725	10324			3540	34277
1730	10233			* 3545	34325
* 1735	10371			3550	² 34491
* 1740	13523			3555	34516
1745	13594			3605	36081
1750	13578			3610	36118
1755	17875			3615	² 36231

GLOSS		SEMI-GLOSS		LUSTERLESS	
OLD 595	NEW 595	OLD 595	NEW 595	OLD 595	NEW 595
1760	17178			3620	² 36306
1765	17043			3625	36357
1770	² 17038			3630	36373
1775	² 17038			3635	36440
				3640	² 36306
				3645	.....
				3650	.....
				3655	35237
				3660	.....
				3705	33722
				3710	37778
				3715	37875
				3720	37855
				3725	37038
				3730	37144

* Same color as TT-C-595.

¹ Color moved to semi-gloss.

² Divided references.

NOTE—The procuring agency should be contacted to make positive identification in cross-references; as only those colors * asterisked are identical with the original TT-C-595.

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