CHAPTER V
STANDARD SCRAP SPECIFICATIONS

A. GENERAL

1. This chapter summarizes the commercial specifications used by the scrap recycling industry to describe the types/grades of scrap generally handled in DoD scrap yards. Also included are descriptions of several typical categories of unprepared scrap which deviate from recycling industry standards.

2. Whenever feasible, scrap received in DoD scrap yards should be segregated and described in accordance with commercial scrap specifications, because this will enable prospective buyers to submit competitive bids at or near commercial market prices without incurring the substantial costs that would otherwise be involved in making physical inspections. Where use of commercial specifications is not feasible (e.g., in describing ordnance scrap consisting of demilitarized artillery projectiles/missiles, bombs, mines or torpedoes) scrap should be identified as such and further described by listing the National Stock Number (NSN) of the property from which the scrap was derived and the relative proportions of its constituent elements, including any contaminants.

3. Many of the constituent elements of nonferrous scrap (including scrap that contains stainless steel and high temperature alloys) are classified as critical and strategic materials because of the lack of an adequate domestic supply of these materials (especially for aerospace applications) and our current high dependency on foreign sources of supply. It is therefore essential, as previously indicated in chapter I, that we place priority emphasis on recovering these materials, particularly cobalt, titanium, chromium, and rare precious metals, from the DoD scrap stream and describing them accurately for sale to the recycling industry. In this way, we can significantly reduce our dependence on foreign sources of supply. (See Table V-1 for a graphical presentation of U.S. net import reliance on selected minerals and metals.)

B. FERROUS SCRAP

1. General requirements:

a. Cleanliness. All grades of ferrous scrap will be free of dirt, nonferrous metals, or foreign material of any kind, and excessive rust and corrosion. However, the phrase "free of dirt, nonferrous metals or foreign material of any kind" is not intended to preclude the presence of negligible contamination where it can be shown that this is unavoidable in the customary preparation and handling of the particular grade involved.

b. Off-grade material. Inclusion of a negligible amount of metallic material which exceeds to a minor extent the size limitations or fails to a minor extent to meet applicable quality requirements for that grade. Such minor deviations will not change the classification of the lot, provided it can be shown that inclusion of such off-grade material is unavoidable in the customary preparation and handling of the grade involved.

2. Specifications for ferrous scrap are set forth by the Institute of Scrap Iron and Steel (ISIS). Specifications for grades which may be generated by DoD activities have been excerpted from the ISIS Handbook as revised in 1975, and listed in Attachment 1 to this chapter. Refer to the ISIS Handbook for the full listing of ferrous scrap specifications.

3. Railroad ferrous scrap specifications as set forth by the Association of American Railroads (AAR) are included in Attachment 1 to this chap ter. These specifications, last revised in 1973 by the AAR Purchases and Materials Management Division, are excerpted from the ISIS Handbook.

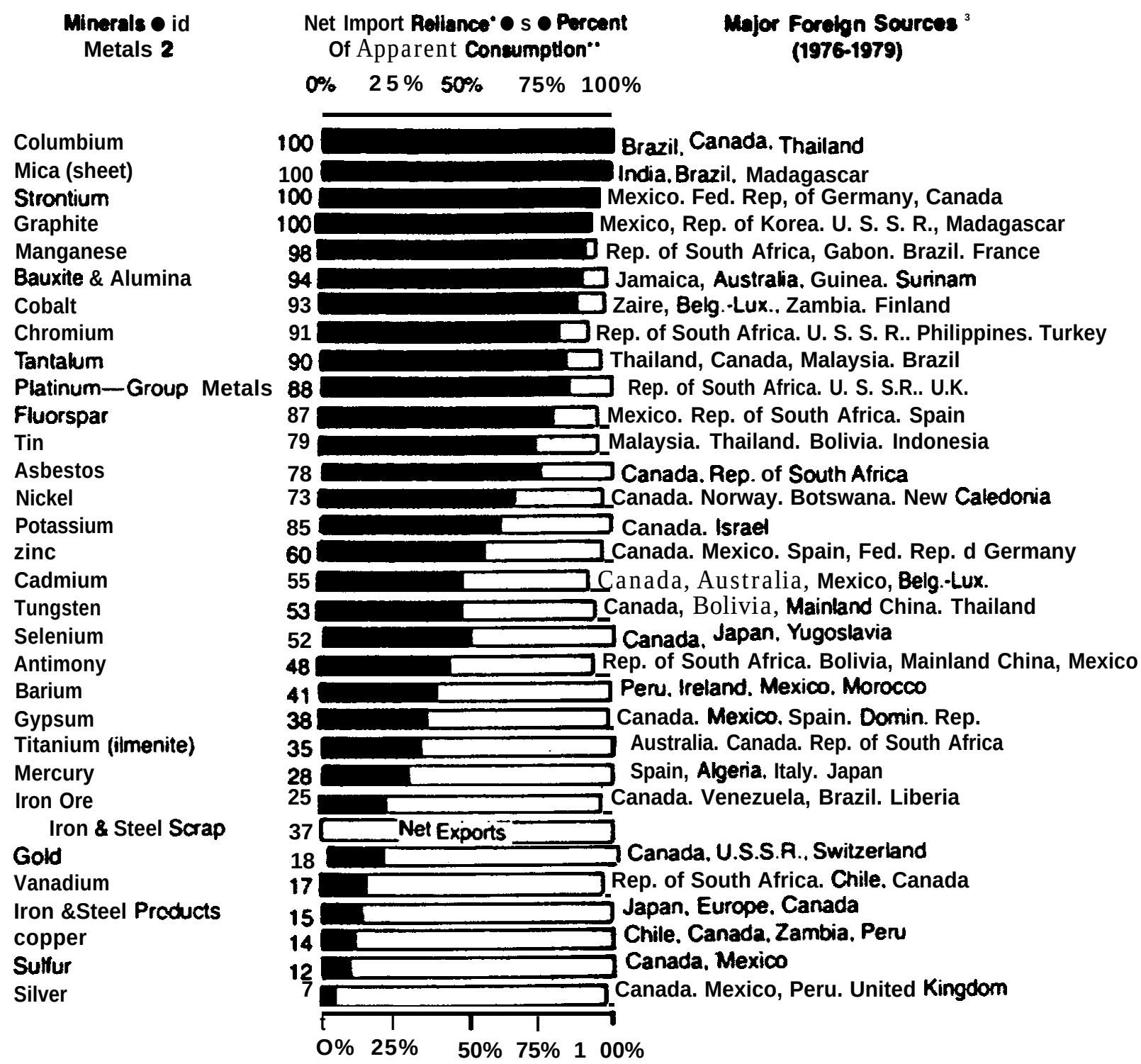
4. Special grades of steel scrap, which consist of alloys containing manganese, silicon, chromium, nickel, vanadium, tungsten, molybdenum, or cobalt, are much more valuable than carbon steel scrap, and may be considered as contaminants when lotted with carbon steel scrap. Hence, when identifiable and present in sufficient quantity to justify separate handling, these special grades should be kept segregated from carbon steel. Special grades of steel include tool steels and such nontool categories as springs, magnets, valves and bearings.

C. NONFERROUS SCRAP

1. Nonferrous scrap currently generates by far the largest proportion of gross proceeds received from the sale of scrap. Therefore, as indicated earlier in chapter I, DoD scrap yards should give priority attention to cost-effective management of nonferrous scrap operations.

TABLE V-1

U.S. Net Import Reliance of Selected Minerals and Metals as a Percent of Consumption in 19801



*Net Import Reliance = Imports-Exports + Adjustments for Gov't and Industry Stock Changes.

**Apparent Consumption = U.S. Primary + Secondary Production + Net Import Reliance

1 Final Data 9-1-81

2 Substantial quantities are imported of Rutile. Rhenium and Zircon data, withheld 10 avoid disclosing company proprietary data.

3 Sources shown are points of shipment to the US. and are not necessarily the initial sources of the material.

BUREAU OF MINES, U.S. DEPARTMENT OF THE INTERIOR (import-export data from Bureau of the Census)

2. Industry specifications for nonferrous scrap are published by the National Association of Recycling Industries (NARI) in its Circular NF-82. (See Attachment 2, this chapter, for NARI specifications for those grades usually generated by DoD activities.) Stainless steel and high temperature alloy scrap are handled as nonferrous scrap, because of the value of their nonferrous constituents. (See Figures V-1 and V-2.)

3. Stainless steels are produced for corrosion resistant applications through the addition of chrome and/or nickel to the ferrous base. The two major series of stainless steels are the 300 series (which is nonmagnetic and built around a basic content of 18 percent chromium and 8 percent nickel) and the 400 series (which is magnetic and normally devoid of nickel content). (See Table V-2 for specific alloy content of stainless steels.)

4. High temperature alloys are produced to yield high strength in an operating environment where sustained high temperatures occur. Their alloy components are primarily combinations of nonferrous metals such as chromium, nickel, cobalt, molybdenum, tungsten, boron, columbium, titanium, aluminum, vanadium, and tantalum. The two major high value components of high temperature alloys are cobalt and nickel. (See Table V-3 for specific chemical compositions of high temperature alloys.) Because of the rapid pace of technological developments in the area of high temperature alloys, and the urgent need to prevent the loss of these scarce, high value critical and strategic materials, it is essential to give special attention to the identification and recovery of scrap containing these alloys. As previously indicated, proper identification of high temperature alloy scrap crucially depends on proper segregation at the source of generations. This is essential because the generators of high temperature alloys, who work with the applicable technical manuals and have immediate access to analytical laboratory facilities, are in the best position to identify the composition of these alloys. (See Figure V-3 for display board used for this purpose.)

Figure V-1. In this sorting area high-temperature and stainless steel alloy scrap is identified and segregated.

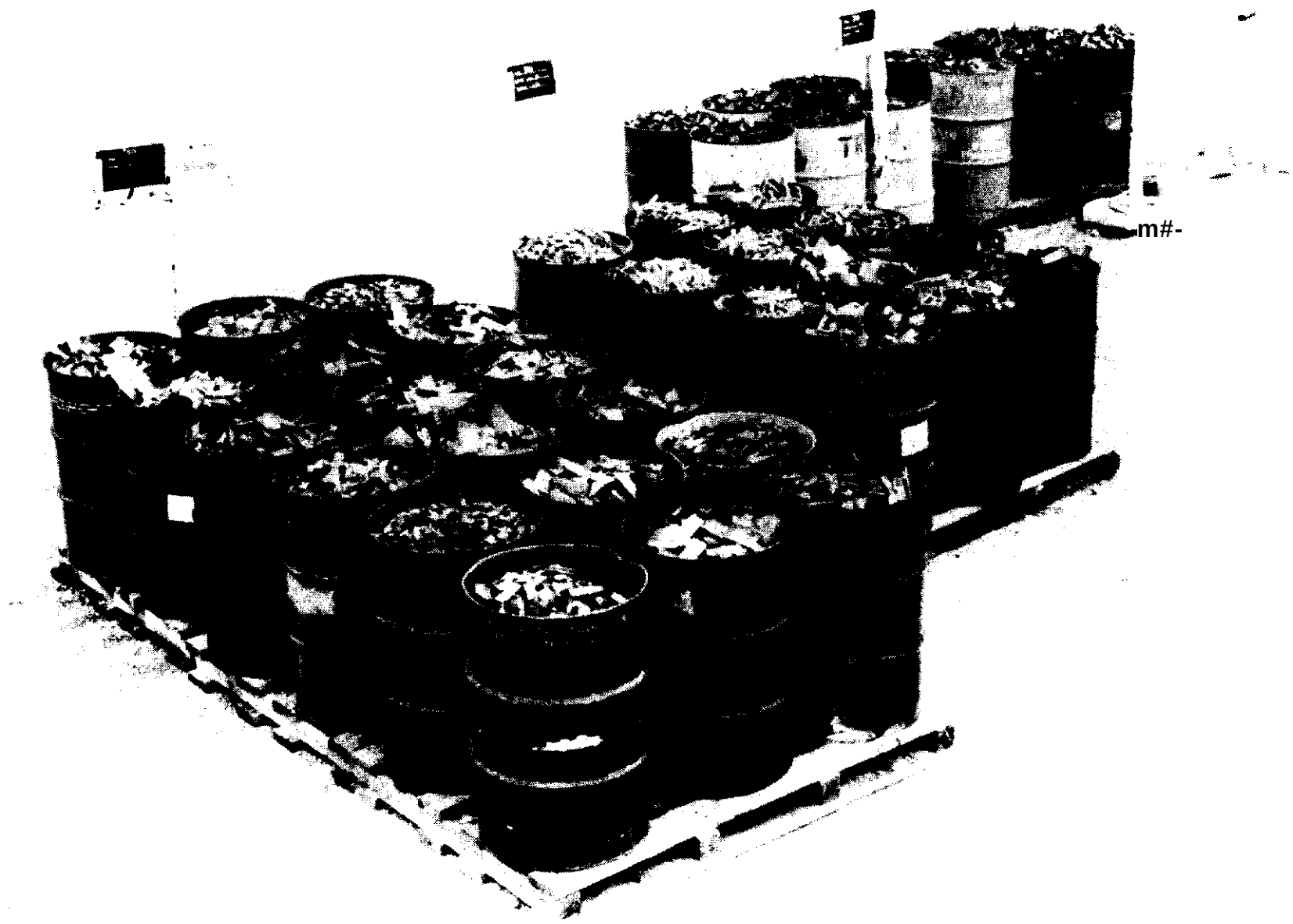


Figure V-2. Nickel base, titanium and other high temperature alloy scrap can receive proceeds of up to several dollars per pound when properly identified and segregated,

Table V-2. Nominal Chemical Analysis of Stainless Steels

Stainless Steel Designation	Nickel	Chromium	Moly (Max.)	Mangarose (Max.)	Carbon (Max.)	Silicon (Max.)	Other Elements
301 LW	6.00	17.00					Cu 2.00
301	6.00/8.00	16.00/18.00		2.00	0.15	1.00	
302,	8,00/10.00	17.00/19.00		2.00	0.15	1.00	
303	8.00/10.00	17.00/19.00	0.60	2.00	0.15	1.00	Zr .60 max., 0.15 S
303 Se,	8.00/10.00	17.00/19.00		2.00	0.15	1.00	Se .15 min.
304	8.00/12.00	18.00/20.00		2.00	0,08	1.00	
304 L	8.00/12.00	18.00/20.00		2.00	0.03	1.00	
305.,	10.00/13.00	17.00/19.00		2.00	0.12	1.00	
309	12.00/15,00	22.00/24.00		2.00	0.20	1.00	
310	19.00/22.00	24.00/26,00		2.00	0.25	1.50	
312	8.00/11.00	27.00/30.00		2.00	0.25	1.00	
314	19.00/22.00	23.00/26.00		2,00	0,25	1.50/3.00	
316	10.00/14.00	16.00/18.00	2.00/3.00	2.00	0.08	1.00	
317	11.00/15.00	18.00/20,00	3.00/4.00	2.00	0.08	1.00	
321	9.00/12.00	17.00/19.00		2.00	0.08	1.00	Ti 5 x C min.
322	6.25/7.75	16.25/17.25		.70	.05/.08	.70	Ti .70/1 .0, Al .20/.30
323 (17-7 PH)	6.50/7,75	16.00/18.00		1.00	0.09	1.00	Al .75/1 .50
324 (17-4 PH)	3.00/5.00	15.50/17.50		1.00	0.07	1.00	Cu 3.00/5.00, Cb–Ta 0.25/0.45
325	19.00/23.00	7.00/ 10.00		2.00	0.50	1.60	Cu 1.00/1.50
327,	3.00/5.00	25.00/30.00			0.25		
329	2.50/5.00	23.00/28.00	1.00/1.50	2.00	0.20	Loo	
330	33.00/36.00	14.00/16.00		2.00	0.25	1.00	
347	9.00/13.00	17.00/19,00		2.00	0.08	1,00	Cb-Ta 10xC min.
201	3.50/5.50	16.00/18.00		5.50/7.50	0.15	1.00	N 0.25 max.
202	4.00/6.00	17.00/19.00		7.50/10.00	0.15	Loo	N 0.25 max.
211	5.25/5.00	10.00/16.25		6.00/6.25	0.07	.30/.60	Cu 1.50 to 2.00
403		11.50/13.00		1.00	0.15	0.50	
405		11.50/14.50		1.00	0.08	1.00	Al .10/.30
410		11,50/13.50		1.00	0.15	1.00	
414	1.25/2.50	11.50/13.50		1.00	0.15	1.00	
416		12.00/14.00	.60	1.25	0.15	1.00	Zr 0.60 max.
420		12.00/14.00		1.00	Over 0.15	1.00	
430,		14.00/18.00		1.00	0.12	1.00	
431	1.25/2.50	15.00/17.00		1.00	0.20	1.00	
432		16.00			0.10		Cu 1.00
433	.50	16.00	1.00		0.10		Cu 1.00
434		16.00	.75/1 .25		0.10		Cu 1.00

TABLE V-3. **Nominal Chemical Analysis of High Temperature Alloys**

Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
14-14-2	14.00	14,00		3.50	2.40		.45			
17-14 CU-MO	14.10	15.90		2.50		3.00	.12	.25		.45 CB
19-9 DO	9.00	19.25		1.25	1.25		.30	.30		.40 CB
19-9 WHO	9.00	19.00		.40	1.25		.10	.35		.40 CB ,
19-9 DX	9.00	19.25		1.50	1.25		.30	.60		1.30 CB
19-9 WX	8.50	20.50		.50	1.55		.11	.20		
A.E.M. 47-50	47..50									52 Fe
Alnico 11	17.00		13.00			6.00	.10		10.00	54 Fe
Alnico V	14.00		24.00			3.00			8.00	51 Fe
AM-350	4,50	16.65		2.85			.09			
AM-355	4,00	15.50		2.85			.13			
A-286	25,50	15.00		1.30				2.10	.35	.30 v
Astroloy	57.00	15.00	15.00	5.00				3.50	4.30	.20 Fe
Carpenter 10	18.00	16.00					.08			
Carpenter 20	27.00	20,00		2.50		3.5				45 Fe
Carpenter 42	41.50							.10		.50 Mn, .25 Si, Bal Fe
Carpenter 49	48.50									51 Fe
Carpenter 52	51.00									.50 Mn, .25 Si, Bal Fe
Constantin	43.00					55.00				1,34 Mn
Copel	45.00					55.00				
Discaloy	26.00	13.50		3.00				1.80	.35	
Duranickel	94.00						.15	.50	4,50	.15 Fe
D-979	45.00	14.00		4.00				4,00	1.00	4.0 w
Elgiloy	15.00	20.00	40.00	7,00			.15			17 Fe
Elinvar Extra	42,00	5.00						2.50	.50	
G-18-B	13.00	13.00	10.00	2.00	2.50		.40			3.00 CB+Ta
Gannaloy	25.00	5.00					.03	2.25	.50	
Gr. Ascoloy	2.00	13.00			3.00		.15			
GMR-235	63.00	15.50		5.25			.10	2.00	3.00	
HS-1[1]		30.00	55.00		12.00		2.50			
HS-3[1]		31.00	50.00		12.50		2.40			1.00 Fe
HS-4[1]	3.00	30.00	50.00	1.50	14.00		1.00			3.00 Fe
HS-6[1]	3.00	29.00	60.00	1.50	4.50		1.10			1.00 Fe
HS-12[1]	3,00	30.00	56.00		8.50		1.40			3.00 Fe
HS-19[1]	3.00	31.00	52.00		10.50		1.70			3.00 Fe
HS-21	2.50	27.00	60.00	5.50			.25			3.00 Fe
HS-23	1.50	25.00	65.00		5.00		.40			2.00 Fe
HS-25 (L-605)	10.00	20.00	52.00		15.00		.15			ZOO Fe
HS-27	33.00	25.00	33.00	6.00			.40			2.00 Fe
HS-30	15.00	26.00	50.00	6.00			.45			2.00 Fe
HS-31	10.50	25.50	53.00		7.50		.50			2.00 Fe
HS-56	13.00	21.00	12.00	4.50	1.50		.30			46.00 Fe
HS-93	.50	17.00	6.00	16.00						53.00 Fe, 2V
HS-98M-2	3.50	30.00	40.00	.80	18.50		2.00			2.50 Fe, 4V
Hastelloy A	59.00			20.0(			.10			
Hastelloy B	64.00			28.0(			.10			
Hastelloy C	55.00	16.00		17.0(	5.00		.15		1.00	
Hastelloy D	85.00					4.00	.10			10.00 Si
Hastelloy N	71.00	7.00		16.5(			.06		.50	5.00 Fe
Hastelloy R	65.0(	15.50	1.50	5.0(			.10	2.50	2,25	
Hastelloy R-235	67.0(	15.50	2.50	5.0(			.10	2.50	3.00	
Hastelloy W	60.00	5.00	2.50	25.0(			.12			.60 V
Hastelloy	45.0(	22.00	1.50	9.0(	.60		.10			
Hipernik	50.0(									50 Fe
Hy-Mu-80	80.0(			4.0(						16 Fe
Ilium G	57.0(	22.50		6.4(	6.50					6.50 Fe
Ilium R	64.0(	22.00		5.00	2.50					6.00 Fe
In-100	60.01	10.0(	15.00	3.00				5.00	5.50	1.00 v
Inconel (600)	76.00	15.8(				.10	.04			7.20 Fe
Inconel W (722)	75.00	15.0(				.10	.55	2.40	.60	6.50 Fe
Inconel X (X-750)	73.00	15.0(				.05	.04	2..50	.80	6.75 Fe, .85 CB
Into X-550 (751)	72.50	15.0(				.05	.04	2.50	1.20	6.75 Fe, 1.00 CB
Into 700	46.0	15.0(	28.50	3.75		.05	.12	2.20	3.00	.70 Fe

TABLE V-3. Nominal Chemical Analysis of High Temperature Alloys—Continued

Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
Inco 713	74.00	11.50	...	4.50	...	...	.12	.50	6.00	1.00 Fe, 2.00 CB
Inco 718	52.50	18.00	...	3.00	...	.10	.04	.80	.60	18 Fe, 5.20 CB
Inco 901	42.50	12.50	1.00	6.00	...	.10	.05	2.70	.35	34 Fe
Incoloy (800)	32.00	20,50	...	...	...	...	...	...	...	46 Fe
Invar	36.00	...	...	...	...	...	...	...	...	64 Fe
Jetalloy 1570	29.00	20.00	37.50	...	7.00	...	.20	4.20	...	
K-42-B	43.00	18.00	22.00	...	...	...	...	2.50	.20	
Kinsalloy	70.00	...		22.00	...	...	...	...	8.00	
Kovar	29.00	...	17.00	...	...	...	...	...	...	
M-252	53.50	19.00	10.00	9.50	...	...	.15	2.50	1.00	
M-308	32.50	13.75		4.20	6.50	...	.08	...	.45	.15-2 .35 Zr
R Monel (# BOO)	66.00	...	...	...	...	31.50	.12	...	...	1.35 Fe
Monel #401	44.50	...		...	...	53.00	.03	...	...	1.70 Fe, .50 Co
Monel #lo	66.00	...		...	...	30.50	.20		...	1.00 Fe, 1.60 Si
K Monel (K-500)	65.00	...		...	...	29.50	.15	.50	2.80	1.00 Fe
S Monel (# BOO)	64,00	...		...	...	29.00	.08	...	...	2.00 Fe, 4.00 Si
H Monel (#506)	64,00	...	...	...	...	30.00	.10	...	...	1.50 Fe, 3.20 Si
Mu, Metal	77.00	1.50	...	...	...	4.50	...	...	...	
N-155 [Malt),	20.00	20.00	20.00	3.00	2.50	...	.12	...	...	30 Fe, 1.00 CB+Ta
Nickel 200 (A)	99.50	...	...	...	...	.05	,06	...	...	.15 Fe
Nickel 202	95.50	...	...	...	3.80	.02	.03	...	...	.05 Fe
Nickel 204	95.20	...	4.50	...	...	.02	.03	...	...	
Nickel 210	95.60	...	...	...	...	.50	.80	...	...	.50 Fe, 1.60 Si
Nickel 211 (D)..,	95.00	...	...	...	...	.03	.10	...	...	.05 Fe, 4.50 Mn
Nickel 213 (G)	95.00	...	...	...	...	.50	1.50	...	...	.50 Fe, 1.60 Si
Nickel 305 (S)	91,50	...	...	...	...	.50	.80	...	...	.50 Fe, 6.00 Si
Z Nickel	94.00	...	...	...	...	.05	.15	.50	4.50	.15 Fe
Nicrotung	61.00	12.00	10.00	...	10.00	...	.10	4,00	4.00	
Ni-o-nel (825)	41.80	21.50		3.00	...	1.80	.03	.90	.15	30.00 Fe
Ni-o-nel (826)	51.50	30,00	...	...	...	1.70	.04	...	...	
Ni-Span-C	42.00	5,40		...	...	.05	.02	2.40	.65	
Nivco	22.50		73.50	...	...	...	.02	1.80	.22	
Nimonic 75	77.60	20,50	...	...	...	.05	.10	.35	.20	.50 Fe
Nimonic BOA	74.50	20.50	...	...	...	.05	.05	2.35	1.25	.55 Fe
Nimonic 90	56.20	20.30	17.70	...	...	.05	.05	2.60	1.65	
Nimonic 95	50.00	20.00	20.00	...	...	...		3.00	2.00	
Nimonic 100	50.00	19.00	20.00	5.00	...	...	.10	3.00	2.00	
Nimonic 105	46.00	15.00	20.00	5.00	...	...	.15	1,45	4.50	
Nimonic 115	42.50	15.00	15.00	3.50	...	...	.20	4,00	5.00	
Niresist # 1	15.50	2.20	...	...	...	6.00	3.00		...	2.00 Si
Niresist # 2	20.00	3.00	...	...	...	...	2.60	...	...	2.00 Si
Niresist # 3	30.00	3.00	...	...	...	...	2.60	...	...	1.50 Si
Niresist # 4	30.50	5.00	...	...	...	...	2.60		...	5.50 Si
Niresist # 5	35.00	3.00	...	...	...	...	2.40		...	1.50 Si
Permanickel	98.60			...	...	...	.25	.50	...	.10 Fe, .35 Mg
Permendur	...		50.00	...	...	...	...		...	50.00 Fe
PDRL	60.00	10.00	15.00	3.00	...	...	...	4.50	5.50	.75 v
PH-15-7 Mo	7.00	15.00	...	2.50	...	...	,09	...	1.15	
RA-330	35.00	19.00		...	...	.50	.06	...	...	
RA-333	45.00	25.00	3.50	3.50	3.50	.50	.08		...	
Refractoloy B	30.00	25.00	...	8.00	...	...	.07		...	
Refractoloy 26	37.00	18.00	20.00	3.00	...	...	...	2.70	.50	
Refractoloy 70	20.00	20.00	30.00	8.00	4.00	...	.05		...	
Refractoloy 80	20.00	20.00	30.00	10.00	5.00	...	.10		...	
Remalloy 17	...	...	12.00	17.00	...	...	...	...	...	.30 Mn, 71 Fe
Remalloy 20	...		12.00	20.00	...	...		...	...	.30 Mn. 67.70 Fe
Rene 41	52.00	19.00	11.00	10.00	...	...	...	...	...	
Rodar	29.00		17.00	...	...	...	...	...	...	.30 Mn. Bal. Fe
SM 200	60.00	9.00	10.00	...	12.50	...	...	2.00	5.00	
SM 302	1.50	21.50	56.00	...	10.00	...	.85		...	9.00 Ta
S-816	20.00	20.00	44.00	4.00	4.00	...	.35	...	...	5.00 Fe, 4.00 CB+Ta
Star J	2.50	32.00	45.00	...	17.50	...	2.50	...	...	3.00 Fe

TABLE V-3. Nominal Chemical Analysis of High Temperature Alloys—Continued

Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
Thetaloy (PWA 651)	46.00	25.00	12.50	3.00	7.00		.38	.38		
Ticonium	30.00	25.00	30.00	6.00			.06	.06		
Timken (16-25-6)	25.00	16.00		6,00						1.35 Mn
Timken (16-15-6)	15.00	16.00		6.00						7.50 Mn
Tinidur	30.00	15.00					.08	1.75	.40	
Udimet A	25.00						.03	1.65	.30	Bal. Fe
Udimet 500	53.00	17.50	16.50	4.00			.10	3,00	3.00	Bal. Fe
Udimet 520	56.00	19.00	12.00	6.00	1.00			3.00	2.00	1.00 Fe
Udimet 600	52.00	17.50	16.50	4.00				2.90	4.20	4.00 Fe
Udimet 700	52.00	17.00	18.00	4.00				3.50	4.20	1.00 Fe
Vicalloy	52.00									
Waspaloy	56.00	19.00	14.00	4.00				3.00	1.20	2.00 Fe
Waspaloy (Mod)	56.00	19.00	11.50	7.00				2.50	1.20	2.00 Fe

[1] Hayne's Stellite alloy.

5. There are four levels of stainless steel and high temperature alloy identifications and segregations as follow

a. The highest level will generate the greatest proceeds from sale. This level requires segregation and identification to a specific alloy recognized by the American Society for Testing and Materials (ASTM), the American Society of Mechanical Engineers (ASME), the Aerospace Materials Specifications (AMS), or the Society of Automotive Engineers (SAE). (See Tables V-2 and V-3.)

b. The second level is identification and segregation to a stainless steel or high temperature alloy group as listed respectively in Tables V-4 and V-5, and in Air Force T.O. 00-25-113. In most instances, this will generate significantly lower sale proceeds than the first level, because the buyer must pay for the costs of the additional sorting and processing required.

c. The third level is identification and segregation to a general group of stainless steel and high temperature alloys (i.e., mixed stainless steels, such as 201, 304, 310, 316, 410, and 420—or mixed high temperature alloys including a nickel or cobalt base). This type of segregation involves a lesser amount of effort in identification, but sale proceeds are greatly reduced because alloys are then likely to require a great deal of additional identification and segregation by the buyer before they can be recycled effectively.

d. The lowest, and unacceptable, level is to fail completely to identify high value alloys and allow them to become commingled with ferrous scrap. This will not only result in loss of scarce critical and strategic materials, but may also reduce the market value of the ferrous scrap—since many stainless steels and high temperature alloys (which are contaminants to ferrous scrap) are magnetic and thus can only be segregated by costly manual sorting.

TABLE V-4. Stainless Steel Alloy Groups (Magnetic and Nonmagnetic)

Group	Base Alloy	Material Alloy	Principal Elements (percent)
1	Stainless Steel	AISI Types 302, 303, 304, 305, 308, 316, 321, 347, 17-7PH and PH15-7M0, Inconel W and 321 when joined.	7-13 Ni, 17-19 Cr
2	Chrome, Stainless	AISI Types 403,405, 410, 414, 416,420, 430, 431, 440	O-2 Ni, 12-16 Cr
12	Chrome, Nickel, Iron	17-4 PH. AM 355.	4 Ni, 17 Cr
17	Chrome, Nickel, Iron	19-9DL, Greek Ascoloy.	2-9 Ni, 12-20 Cr
21	Stainless Steel	AMS 5700 Valves (PWA-143, WAC 8163).	14 Ni, 14 Cr
24	Chrome, Nickel, Iron	H. R. Crown (PWA 785, WAC 8338).	12 Ni, 25 Cr

TABLE V-5. High Temperature Alloy Scrap Segregation Groups

Group	Base Alloy	Material Alloy	Principal Elements (percent)
3	Cobalt	Haynes Stellite (HS) 23, 25,31, 36, L-605.	-10 Ni, 12-16 Cr, 50-67 Co
4	Nickel	Hastelloy-C.	55 Ni, 16 Cr
5	Chrome, Nickel, Cobalt	N-155 (Multimet), G18B, (PWA 6.58), 321 and N-155 when joined, 321 and HS-25 when joined, 321 and HS-21 when joined, 347 and HS-21 when joined, Timken 16-25-6 and HS-21 when joined. Inconel 702 and HS-31 when joined.	2-20 Ni, 13-27 Cr, 10-60 Co
6	Nickel, Chrome, Iron	Timken 16-25-6.	25 Ni, 16 Cr
7	Chrome, Nickel, Iron	Timken 16-25-6 and 4340 when joined. Timken 16-25-6 and 321 when joined.	.-25 Ni, 8-16 Cr
8	Nickel	Inconel, Inconel X, Inconel W, Inconel 702, Inconel 713.	70-74 Ni, 15 Cr
9	Cobalt	6-816 (AMS .5765).	20 Ni, 20 Cr, 40 Co
10	Nickel	Monel.	60 Ni, 30 Cu
14	Stainless Steel	AISI 309, 309S, 310, 314, 446, Immaculate No. 5 (WAC 7824), Inconel and 310 when joined.	12-20 Ni, 24-25 Cr
15	Cobalt	KS-21, 30.	2-15 Ni, 26-27 Cr, 50-60 Co
16	Nickel	Nimonic 75, 80, 80A, (WAC 7830,7831, 7832,7834, 7835).	75-80 Ni, 20-21 Cr
18	Nickel	Waspalloy (PWA 675), (GE) M-252, Rene 41, Inconel 702 and Rene 41 when joined, Udimet 500.	55 Ni, 19 Cr, 13 Co
20	Nickel	Refractalloy 26, 80 (HS-33, Westinghouse 9269).	37 Ni, 18 Cr, 20 Co
22	Nickel	Inconel Valves	75 Ni, 20 Cr
23	Chrome, Nickel, Iron	A-286 Discaloy, Incoloy, Incoloy A (GE B50T9), Incoloy 901, (GE) M-308, Tinidur.	26-30 Ni, 13-20 Cr
25	Cobalt	HS-27.	30 Ni, 25 Cr, 30 Co
26	Nickel	Invar.	36 Ni
27	Nickel	GMR-235 (Allison ES-73640).	60 Ni, 15 Cr
28	Nickel	Thetaloy PWA 651.	60 Ni, 25 Cr, 12 Co
29	Nickel	Nimonic 90 (WAC 7836).	58 Ni, 19 Cr. 18 Co
30	Nickel	PWA663, B-1900.	64 Ni, 8 Cr., 10 Co
32	Nickel	Hastelloy X.	45 Ni, 22 Cr, 1.5 Co
33	Nickel	AISI 330.	35 Ni, 15 Cr
55	Tungsten	Tungsten.	90W
60	Titanium	Titanium.	80 Ti
62	Beryllium	Beryllium.	Beryllium (BE)
65	Alloy, high temperature	Coated, plated or brazed with silver.	
70	Alloy, high temperature	Coated, plated or brazed with gold.	
75	Alloy, high temperature	Coated, plated or brazed with platinum.	

D. PAPER. CARDBOARD. AND CORRUGATED SCRAP

1. Industry specifications for these types of scrap are published by the Paper Stock Institute of America, a commodity division of the National Association of Recycling Industries (NARI), in its Circular PS-83. Excerpts of specifications for those grades usually generated by DoD activities are included in Attachment 3 to this chapter. The terminology used in these descriptions is as follows:

a. "Outthrows" are defined as "all papers that are so manufactured or treated or are in such form as to be unsuitable for consumption as the grade specified."

b. "Prohibitive Materials" are defined as:

(1) Any materials which by their presence in a packing of paper stock, in excess of the amount allowed, will make the packing unusable as the grade specified.

(2) Any materials that may be damaging to equipment.

c. The maximum quantity of "Outthrows" indicated in connection with the grade definitions in Attachment 3 is understood to be the total of "Outthrows" and "Prohibitive Materials".

2. The "Prohibitive Materials" and "Outthrows" listed for selected grades in Table V-6 are intended to be specific but should not be considered an all-inclusive list.

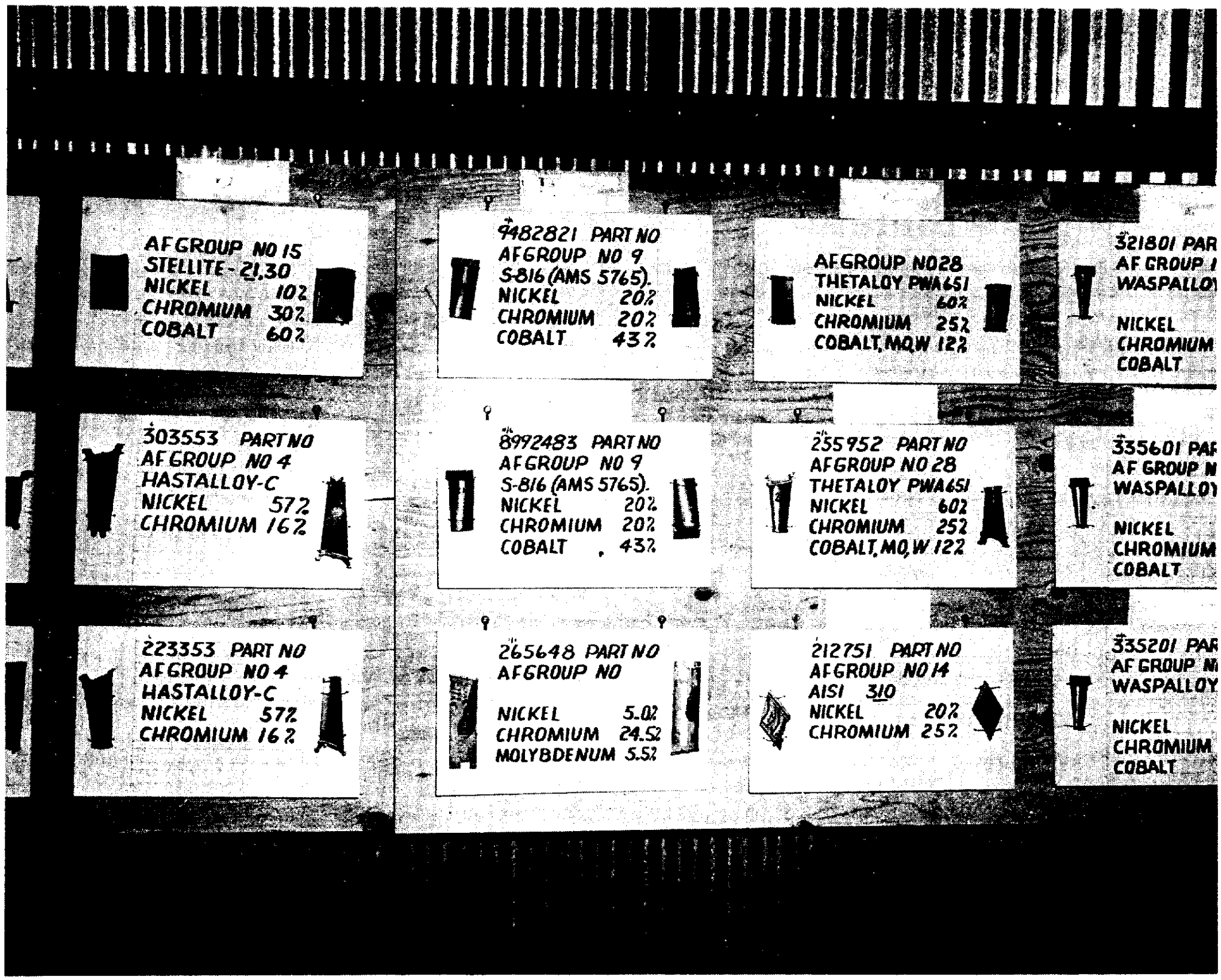


Figure V-3. Display board used to assist in the identification and segregation of high temperature alloys.

TABLE V-6. Prohibitive Materials and Out-throws

Sorted COLORED Ledger and Manifold COLORED Ledger

PROHIBITIVE MATERIALS		OUTTHROWS	
Pressure Sensitive Adhesives	Plastic Coatings	Parchment	Unbleachable Beater-Dyed Papera
Heat Seal Adhesives	Wet Strength Coatings	Cellophane	Cloth Bindings
Latex Adhesives	Foil Coatings	Telefax Type Papers	String Bindings
Acetate Adhesives	Wax Coatings	Carbon Paper	Thread Bindings
Moisture Barrier Laminations	Adhesive Bindings	Asphalt Papers	Punchings
Wet Strength Papers	Plastic Bindings	Film	Glassine
Treated Copy Papers	Heavy Metal Bindings	Tip Ons	Plastisol Inks
Magnetic Inks	Blueprint	Hard Covers	Fluorescent Inks
Metallic Inks	Photographic Papers	Coarse Groundwood	High Gloss Inks
Heavy Overprint	Billboard Posters	Krome Kote	
Ink Wads	Picture Post Card Stock	Varnish & Lacquer Coatings	
Latex Coatings	Labels	Chipboard	

Sorted WHITE Ledger and Manifold WHITE Ledger

PROHIBITIVE MATERIALS		OUTTHROWS	
Pressure Sensitive Adhesives	Plastic Coatings	Cellophane	Cloth Bindings
Heat Seal Adhesives	Wet Strength Coatings	Telefax Type Papers	String Bindings
Latex Adhesives	Foil Coatings	Carbon Paper	Thread Bindings
Acetate Adhesives	Wax Coatings	Asphalt Papers	Punching
Moisture Barrier Laminations	Adhesive Bindings	Film	Glassine
Wet Strength Papers	Plastic Bindings	Tip Ons	Plastisol Inks
Treated Copy Papers	Heavy Metal Bindings	Hard Covers	High Gloss Inks
Fluorescent Inks	Blueprint	Coarse Groundwood	
Magnetic Inks	Photographic Papers	Krome Kote	
Metallic Inks	Billboard Posters	Varnish & Lacquer Coatings	
Heavy Overprint	Picture Post Card Stock		
Ink Wads	Labels	Chipboard	
Latex Coatings	Parchment		

Coated Book Stock

PROHIBITIVE MATERIALS		OUTTHROWS	
Pressure Sensitive Adhesives	Latex Coatings	Picture Post Card Stock	Deep Colored Beater-Dyed Papers
Heat Seal Adhesives	Plastic Coatings Labels		
Latex Adhesives	Wet Strength Coatings	Parchment	Krome Kote
Acetate Adhesives	Foil Coatings	Cellophane	Varnish & Lacquer Coatings
Moisture Barrier Laminations	Wax Coatings	Telefax Type Papers	Chipboard
Wet Strength Papers	Adhesive Bindings	Carbon Paper	Cloth Bindings
Treated Copy Papera	Plastic Bindings	Asphalt Papers	String Bindings
Magnetic Inks	Heavy Metal Bindings	Film	Thread Bindings
Metallic Inks	Blueprint	Tip Ons	Glassine
Heavy Overprint	Photographic Papas	Hard Covers	Plastisol Inks
Ink Wads	Billboard Posters	Coarse Groundwood	Fluorescent Inks
			High Gloss Inks

E. PLASTIC SCRAP

1. There is a rapidly increasing worldwide emphasis on the innovative use of plastics as substitutes for more conventional raw materials used in the manufacture of such major commodities as automobiles, electrical appliances, clothing, packaging, building materials, and household items. It is therefore necessary to give increased attention to the recovery and recycling of plastic scrap generated by DoD activities.

2. There are over fifty distinctly different types of plastics that fall within seventeen general classes. (See Tables V–7 through V–9.) Each type has a range of properties depending upon its composition and the basic resin used. The major classes are:

a. Acrylics: polymethacrylates, polyacrylates and acrylonitrile copolymers.

b. Alkyd resins.

c. Cellulosics: cellulose acetate, cellulose propionate, cellulose acetate-butyrate, ethyl cellulose, methyl cellulose, nitrocellulose, sodium carboxymethyl-cellulose.

d. Epoxy resins.

e. Melamine resins: melamine formaldehyde.

f. Nylons: polyamide.

g. Phenolic resins: phenol-formaldehyde resins, phenol-furfural resins.

h. Polyester resins.

i. Polyfluorocarbons: polytetrafluoroethylene, polymers of chlorotrifluoroethylene (fluorothene), vinylidene fluoride, hexafluoropropylene.

j. Polyformaldehyde resins.

k. Polyolefines: polythylenes, polypropylene, polybutenes, polypentenes.

1. Polystyrene.

m. Polyurethane resins (isocyanate resins).

n. Silicone resins.

o. Ureas (carbamide): urea-formaldehyde resins.

p. Vinyls: polyvinylacetate (PVA), polyvinylchloride (PVC), polyvinylchlorideacetate, polyvinyl alcohol, polyvinylacetals.

q. Polycarbonates and polychloroethers.

3. Most plastics fall under two groups—thermoplastic or thermosetting, as defined below—depending upon the changes that take place in their physical characteristics when heated. However, polyurethane are included in both groups.

a. The word "thermoplastic" is an adjective applied to plastics such as polystyrenes, acrylics and vinyls, which can be softened by heating. Upon cooling they regain their solid state, thus permitting reprocessing of scrap materials. Approximately 80 percent of all plastics are in this category.

b. The word "thermosetting" is an adjective applied to plastics (such as melamine, phenolics, polyester, ureas, and epoxies) which solidify upon heating and cannot be remelted. Even though thermosetting materials cannot be reprocessed as plastics, there is a market for such scrap for regrinding and use as filler, and as an ingredient in fertilizer.

4. For safety and health reasons, DoD scrap yard personnel are not permitted to heat or flame test plastic materials for identification purposes. They must therefore work closely with generators of plastic scrap to ensure that they segregate it at its source and identify it by its common or trade name. "In most cases, scrap yard personnel must then convert this name into its chemical name in order to determine whether a market exists and, if so, the current market value. Tables V-7, V-8, and V-9 provide cross-references between the chemical name and the common or trade names of selected plastics, together with helpful information as to their composition, characteristics and typical applications.

5. Scrap yard supervisors should" confirm the marketability of plastic scrap before devoting significant effort to segregation and lotting. However, all generations of plastic scrap should be kept clean and free from contamination; and it should be stored under shelter, if feasible.

Table V-7. General Categories of Plastics

Chemical Name	Composition	General Characteristics	Typical Applications	Some Common and Trade Names
Cellulose acetate	A transparent material, amber in color, made by the reaction of cellulose with acetic acid or acetic anhydride in the presence of sulfuric acid.	Thermoplastic; nonflammable; good light and heat stability; tough; easily molded; easily machined; unlimited color possibilities.	Safety photographic film; motion picture film; packaging; textile fibers; fluorescent light fixtures; toys and novelties.	Nixon C/A Tenite C/A Celanese Fibestos Vuepak Vuelite Kodapak Cleasite Joda C/A Sicalit Sicaloid Sicafoil Cellon TEC Wopalon Lumarith Estron Cellomold Celastoid Protectoid Vimlite Miramesh Masuron Nixonite Plastacele Acele Lanese Fortisan Forticel Arnel
		Coatings and lacquers are adhesive, tough, resilient, and do not discolor easily.	Solvents; glazing; injection molding; specially processed fiber for parachutes and fine fabrics.	
Cellulose Nitrate	Cellulose treated with a mixture of nitric and sulfuric acids. Term *nitro-cellulose* used for explosives.	Toughest of the thermo-plastics; low nitrates flammable; high nitrates highly explosive; requires special molding; burns with a smokey flame and the fumes are poisonous.	Fountain pen bodies; ping-pong balls; rayons; smokeless powder.	Amarith Celluloid Nitron Nixonoid Pyroxylin Pyralin Fiberloid Viscaloid
			Lacquers	Duco Zapon Arcozon

Table V-7. General Categories of Plastics—Continued

Chemical Name	Composition	General Characteristics	Typical Applications	Some Common and Trade Names
Melamine-formaldehyde	An alkyd type synthetic resin made by reacting melamine with formaldehyde.	Superior quality thermoset; has good heat and color stability.	Dinnerware; buttons; arc-resistant electrical parts; impregnating paper or fabrics; shrink proofing woolen fabrics; adhesives; coatings; and varnishes.	Melmac Plaskon Resimene Melamine Lanoset Herculoid Hycoloid Pyra-Shell Nitron
Phenol-formaldehyde	Synthetic resin of phenol and formaldehyde; used primarily as a molding material for making mechanical and electrical parta.	Thermosetting; glossy finish; good electrical properties and chemical resistance.	Appliance handles; electrical switches; wiring devices gears, housings, panels, etc.	Bakelite Redmanol Resinox Durez Durite Catalin Moldarta Synvar Crystalline Phenalin Ivoricast Prystal Marblette
Polyamide (nylon)	Made by polymerization of a dibasic acid and a diamine. Most common one is produced by reaction of adipic acid with hexamethylene diamine.	Thermoplastic; high tensile strength; tough.	Textiles; gears; bushings; wire jacketing.	Nylon Zytel Nyloft
Polychlorotrifluoroethylene	Polymers of chlorotrifluoroethylene.	Moldable; chemically inert; temperature resistant; strong.	Valve seats; terminal blocks; transparent cover plates; insulating film.	
Polyester resin	Large group of synthetic resins made by condensation of acids such as itaconic, malsic or phthalic with an alcohol or glycol.	High strength; good chemical resistance; high adhesion; capable of taking bright colors.	Laminating and impregnating materials; insulation for electronic components; electric appliances; close-tolerance moldings; translucent panels; boats; tanks; trays; structural sheeting.	Dapon Selectron Vibrin Hectron Marco Aropol Paraplex Laminac
Polyethylene	Polymerized ethylene	Thermoplastic; tasteless, odorless, and nontoxic; light weight; tough; flexible, even at low temperatures; chemically inert; outstanding electrically; easily processed and colored.	Film and sheets for packaging all types of molded containers; coaxial cable dielectric; electrical parts and fixtures; tank and pipe linings; upholstery; coatings; window glazings.	Polyethylene Petrothene Alathon Alkathene Agilene Dylan Orizon

Table V-7. General Categories of Plastics—Continued

Chemical Name	Composition	General Characteristics	Typical Applications	Some Common and Trade Names
Polymethyl methacrylate	Polymers or copolymers of acrylic acid, esters of these acids, or acrylonitrile.	Thermoplastic; optical clarity; easily formed; stable to outdoor weathering; dimensionally stable.	Aircraft canopies and windows; illuminated signs; contact lens and optical parts; dentures; surgical instruments; safety glass; binder in rock propellants; lacquers; paints, and finishes.	Lucite Plexiglas Perspex Plexene Vernonite Crystallite Lucitone Rhoplex Crilicon Acryloid
Polystyrene	A synthetic resin formed by the polymerization of styrene (vinyl Benzene).	Thermoplastic; very tough; extra high insulating power; optical clarity; easy molding; relatively inexpensive; deteriorates if outdoors.	Refrigerators and air conditioners; fan blades; wall tile; battery cases; ladder line insulators; impregnation of electric coils: bonding of abrasives: lamination of fabrics; toys and novelties:	Polystyrene Styrene Styron Luxtrex Styrex Ampacet Pliolite Victron Lustron Cellulite
Polytetrafluoroethylene	A polymer, plastic or resin derived from tetrafluoroethylene. It is abbreviated PTFE and is sometimes called TFE fluorocarbon resin. Has the same general structure but the hydrogen is replaced by fluorine.	Opaque; milk-white; waxy texture; water resistant; highly chemical resistant; self-lubricating.	Bearings; gaskets; linings for tanks; non-sticking coatings; high-frequency insulation.	PTFE Teflon
Polyvinyl butyral	One of the resins which come under the general heading of Polyvinyl Acetal Resins which are formed by the condensation of acetaldehyde or any other aldehyde with polyvinyl alcohol.	Extremely tough; optically stable; flexible over wide temperature range.	Safety glass; bullet-proof glass; shatter-proof laminates; strippable coatings; waterproofing fabrics.	Butacite Butvar Saflex
Polyvinyl chloride	Abbreviated PVC; a common and widely used synthetic resin, derived from reacting ethylene with hydrogen chloride. Also called ethenyl chloride and chloro ethylene.	l'homoplastic; properties vary widely with method of polymerization.		
		Unplasticized: strong and rigid; resistant to chemicals.	Piping for chemical process industries; acid tanks; ducts; flumes; highway signs; floor coverings.	Vinyl PVC Exon Vyflex
		Copolymer: fabricated to close tolerances; stable dimensionally.	Phonograph records; advertising displays; coatings.	Geon Opalon Pliovic Ultron

Table V-7. General Categories of Plastics-Continued

Chemical Name	Composition	General Characteristics	Typical Applications	Some Common and Trade Names
		Flexible: (plasticized) heat sealable; controlled flexibility; flame resistant.	Insulation for electrical wiring shower curtains; garden hose; upholstery; lug' gage.	Aglide Marvinol Tygon Welvic
Polyvinylidene chloride	A thermoplastic derived from the polymerization of ethylene and chlorine.	Strong, hard; water and grease-resistant; odorlees; tasteless.	Film for packaging monofiliments; coating paper; impregnating clothing.	Saran Velon
Silicones	Resin-like materials in which silicon takes place of carbon in the organic synthetic resins. Designated inorganic plastics.	Temperature resistant; highly water resistant; high dielectric strength.	High-temperature electric and electronic components; water-proofing, strong cements for bonding various materials.	Silicone Velvasil Thermocone Dry-Film 9977 Resin XR-807
Urea-formaldehyde	4 resin made by condensing urea or thiourea with formaldehyde.	Thermosetting; rigid; light-colored.	Closures; buttons; wiring devices, wallboard; laminates; adhesives; sizing.	Plaskon Sylplast Beetle Uformite Weldwood Casco Cascamite Polybond Arodure Synvarite

Table V-8. Thermoplastics (Remeltable)

Term	Features	Some Trade Names
ABS*	Excellent toughness	Kralastic—Naugatuck Chemical Division
Acetal	Extremely rigid	Delrin-DuPont
Acetates	Tough, hard, easily colored	Lumarity—(!elanese Plastacele—DuPont Vuepak—Monsanto
Butyrates	Tough, good weatherability	Tenite Butyrate-Eastman
Cellulose propionate	No odor, stable, bright finish	Forticel—Celanese
Cellolose nitrate	Tough, hard surface, inflammable	Nixon C/N—Nixon Nitration Herculoid—Hercules Powder
Ethyl cellulose	Tough, stands hard treatment	Hercocel E-Hercules Powder Nixon E/C—Nixon Nitration
Fluorocarbon	Highly chemical resistant	Teflon-DuPont Zytel—DuPont
Polyamides (nylon)	Strong and extra tough; standa high temperature	Plaskon—Allied
Polycarbonate	High impact strength	Lexan—General Electric
Polyether (chlorinated)	Excellent chemical resistance	Penton—Hercules
Polyethylene	Light weight and squeezable	Poly-eth—Spencer Alathon—DuPont
Polypropylene	Light weight, unusual chemical resistance	EsCon-Humble Oil
Polystyrene	Brilliant, rigid, colorful	Styron—Dow Lustrex—Monsanto
Vinyls	Versatile, multipurpose, colorful	Exon—Firestone Marvinol—Naugatuck

*Acrylonitrile-Butadiene-Styrene

Table V-9. Thermosetting Materials (Non-Remeltable)

Term	Features	Some Trade Names
Alkyds	Good electrical properties	Plaskon—Allied
Allyls	Low electrical loss	Dapon—FMC Crop.
Caseins	Good color range	Cascoloid—Borden
Epoxies	Excellent adhesion	Epon—Shell Chemical
Melamines	Strong and light-fast	Melmac—Americal Cyanamid
Phenolics	Hard, rigid, strong	Resinox-Monsanto
Polyesters	Tough-hard surface	Mylar—DuPont
Silicones	Resistant to 590” F	Silastic—Dow Coming
Ureas	Colorful, dimensionally stable	Lauxite—Monsanto
Urethanes	Tough, tear resistant	Mondur—Mobay Chemical

F. USED PETROLEUM PRODUCTS

Because of the extent of United States dependence on foreign production of petroleum products, we should place the same emphasis on cost-effective recovery and recycling of used petroleum products as we place on recovery and recycling of other critical and strategic materials generated in the DoD scrap stream. It is therefore essential to ensure careful source segregation of used petroleum products, avoidance of intermingling of these products, and handling them in such a manner as to preclude or at least minimize contamination. If this is accomplished, and if we provide buyers from the recycling industry with accurate and precise descriptions in our sales offerings (including data on any contaminants, and chemical analyses when appropriate), we can improve net DoD benefits through increased proceeds from sale. Such offerings must clearly identify both Federal and state requirements when such products are declared as hazardous wastes.

G. USED SYNTHETIC LUBRICANTS

Requirements for cost-effective recovery and recycling of synthetic lubricants are generally comparable to those outlined above for used petroleum products. However, because of the substantially greater unit value of used synthetic lubricants, they warrant a comparable increase in the amount of scrap yard effort devoted to handling 'them.

H. INDUSTRIAL DIAMONDS/RESIDUE

Industrial diamonds are used in dressing abrasive wheels, and aa a component of grinding wheels, turning and boring tools, diamond dies, and drill bits. Although some DoD activities are now using synthetic diamonds, which produce no valuable residue, many military arsenals, weapons plants, and other industrial activities still use industrial diamond tools which generate diamond swarf, sludge, and chips from broken drill bits. This residue is quite valuable and should be recovered wherever generations are sufficient to warrant the cost of recycling it.

1. Swarf is a relatively dry dust derived from (a) grinding operations where no coolant or lubricant is applied to the grinding operation, or (b) where the coolant (kerosene, as aqueous solution, or an emulsion of oil and water) is sprayed on the wheel in the form of a fine mist. In either case the resultant swarf can be discharged through a pipeline and deposited into a suitable dust collector.

2. Sludge is a wet, oily product, obtained where liberal quantities of coolant are applied to the work, resulting in a semifluid mixture which can be discharged into a collecting chamber below the grinding machine. The excessive liquid may be separated from the solids by recantation or filtration.

a. Dry dust (swarf) normally yields more diamonds per pound of scrap than does sludge from wet-grinding. However, all substantial quantities of both should be recovered. There are a number of recovery units on the market for collections from both dry and wet-grinding operations.

b. In studying the possibilities of a diamond recovery program, the number of wheels consumed per month, wheel size, concentration, etc., must be considered. In instances where only one grinding machine is used only five or six times a year there could not be enough diamond collected to cover the cost of collection. The collection of diamonds from machines where only metal-bonded diamond wheels are used usually proves uneconomical, as the metal bond holds the diamond grit tighter and the grit is fractured into sizes which may not be economical to salvage.

L WOOD SCRAP

Short lengths of lumber and plywood, wood chips, shavings, sawdust and other wood scrap have recycling value for hobbyists, home tinkerers and repairmen, or used as heating fuel or other uses. While the value of wood scrap per unit of weight may be low, there is a significant cost avoidance in its sale in lieu of abandonment or destruction. Caution should be exercised in identifying and handling wood scrap which may have been treated with chemical compounds such as pentachlorophenol (PCP).

J. RECYCLABLE AGRICULTURAL PRODUCTS

Many military installations have underutilized acreages of hays and other grasses. In areas where a sufficient agricultural demand exists, the Defense Property Disposal Service can provide a valuable sales service for the harvest and utilization of these products.

K. ACCOUNTING FOR SCRAP

To supplement the standard scrap specifications used by the scrap recycling industry in the United States, the Defense Property Disposal Service has developed its own Scrap Classification List (SCL) Codes for scrap primarily for inventory and accounting purposes (see Attachment 4). When DoD scrap is generated in a form that is not economitally convertible to an industry scrap specification, these SCL codes may be used in segregating and lotting such scrap. For example, aluminum shell casings generated on an artillery range should be kept segregated from brass shell casings, and accounted for and described for sale respectively under SCL codes D1I and D2E.

ATTACHMENT 1.—INDUSTRY SPECIFICATIONS FOR FERROUS SCRAP [1]

Basic Open Hearth, Basic Oxygen, Electric Furnace, and Blast Furnace Grades.

		1s1s Code Number
(1)	No. 1 heavy melting steel. Wrought iron and/or steel scrap ¼ inch and over in thickness. Individual pieces not over 60 x 24 inches (charging box size) prepared in a manner to insure compact charging.	200
(2)	No. 1 heavy melting steel 3 feet x 18 inches. Wrought iron and/or steel scrap ¼ inch and over in thickness. Individual pieces not over 36 inches x 18 inches (charging box size) prepared in a manner to insure compact charging.	201
(3)	No. 1 heavy melting steel 5 feet x 18 inches. Wrought iron and/or steel scrap ¼ inch and over in thickness. Individual pieces not over 60 inches x 18 inches (charging box size) prepared in a manner to insure compact charging.	202
(4)	No. 2 heavy melting steel. Wrought iron and steel scrap, black and galvanized, ⅛ inch and over in thickness, charging box size to include material not suitable as No. 1 heavy melting steel. Prepared in a manner to insure compact charging.	203
(5)	No. 2 heavy melting steel. Wrought iron and steel scrap, black and galvanized, maximum size 36 x 18 inches. May include all automobile scrap properly prepared.	204
(6)	No. 2 heavy melting steel 3 feet x 18 inches. Wrought iron and steel scrap, black and galvanized, maximum size 36 x 18 inches. May include automobile scrap, properly prepared, however, to be free of sheet iron or thin gauged material.	205
(7)	No. 2 heavy melting steel 5 feet x 18 inches. Wrought iron and steel scrap, black and galvanized, maximum size 60 x 18 inches. May include automobile scrap, properly prepared, however, to be free of sheet iron or thin gauged material.	206
(8)	No. 1 busheling. Clean steel scrap, not exceeding 12 inches in any dimensions, including new factory busheling (for example, sheet clippings, stamping). May not include old auto body and fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.	207
(9)	New Black Sheet Clippings. For direct charging, maximum size 8 feet x 18 inches, free of old automobile body and fender stock, metal coated, limed, vitreous enameled and electrical sheet containing over 0.5 percent silicon, must lay reasonably flat in car.	207A
(lo)	No. 1 bundles. New black steel sheet scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not leas than 75 pounds per cubic foot. (Hand bundles are tightly secured for handling with a magnet.) May include Stanley balls or mandrel wound bundles or skeleton reels, tightly secured. May include chemically detinned material. May not include old auto body or fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.	208
(111	No. 2 bundles. Old black and galvanized steel sheet scrap, hydraulically compressed to charging box size and weighing not leas than 75 pounds per cubic foot. May not include tin or lead-coated material or vitreous enameled material.	209
(12;	No. 3 bundles. Old sheet steel, compressed to charging box size and weighing not less than 75 pounds per cubic foot. May include all coated ferrous scrap not suitable for inclusion in No. 2 bundles.	214
(13:	Incinerator bundles. Tin can scrap, compressed to charging box size and weighing not lees than 75 pounds per cubic foot. Processed through a recognized garbage incinerator.	215
(14:	Terne plate bundles. New terne plate sheet scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not less than 75 pounds per cubic foot. (Hand bundle: are tightly secured for handling with a magnet.) May include Stanley balls or mandrel wound bundles or skeleton reels, tightly secured.	216

ATTACHMENT 1.—INDUSTRY SPECIFICATIONS FOR FERROUS SCRAP I—Continued

Basic Open Hearth, Basic Oxygen, Electric Furnace, and Blast Furnace Grades.

		1S1S Code Number
(15)	Bundled No. 1 steel. Wrought iron and/or steel scrap ⅛ inch or over in thickness, compressed to charging box size and weighing not less than 75 pounds per cubic foot. Free of all metal coated material.	217
(16)	Bundled No. 2 steel. Wrought iron or steel scrap, black or galvanized, ⅛ inch and over in thickness, compressed to charging box size and weighing not less than 75 pounds per cubic foot. Auto body and fender stock, burnt or hand stripped, may constitute a maximum of 60 percent by weight. (This percentage based on makeup of auto body, chassis, driveshafts, and bumpers.) Free of all coated material, except as found on automobiles.	218
(17)	Machine shop turnings. Clean steel or wrought iron turnings, free of iron borings, nonferrous metals in a free state, scale, or excessive oil. May not include badly rusted or corroded stock.	219
(18)	Machine shop turnings and iron borings. Same as machine shop turnings but including iron borings.	220
(19)	Shoveling turnings. Clean short steel or wrought iron turnings, drillings, or screw cuttings. May include any such material whether resulting from crushing, raking, or other processes. Free of springy, bushy, tangled or matted material, lumps, iron borings, nonferrous metals in a free state, scale, grindings, or excessive oil.	221
(20)	Shoveling turnings and iron borings. Same as shoveling turnings, but including iron borings.	222
(21)	[ron borings. Clean cast iron or malleable iron borings and drillings, free of steel turnings, scale, lumps, and excessive oil.	223
	Electric Furnace Casting, and Foundry Grades	
(1)	Bar crops and plate scrap. Bar crops, plate scrap, forgings, bits, jars, and tool jointa, containing not over 0.05 percent phosphorus or sulphur, not over 0.5 percent silicon, free from alloys. Dimensions not leas than ½ inch in thickness, not over 18 inches in width, and not over 36 inches in length.	230
(2	Plate and structural steel, 5 feet and under. Cut structural and plate scrap, 5 feet and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not less than 1/4 inch thickness, not over 5 feet in length and 18 inches in width. Phosphorus or sulphur not over 0.05 percent..	231
(3:	Plate and structural steel, 5 feet and under. Cut structural and plate scrap, 5 feet and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not leas than 1/4 inch thickness, not over 5 feet in length and 24 inches in width. Phosphorus or sulphur not over 0.05 percent.	232
(4	Cast steel. Steel castings not over 48 inches long or 18 inches wide, and ¼ inch and over in thickness, containing not over 0.05 percent phosphorus or sulphur, free from alloys and attachment. May include heada, gates, and risers.	233
(5	Punchings and plate scrap. Punchings or stampings, plate scrap, and bar crops containing not over 0.05 percent phosphorus or sulphur and not over 0.5 percent silicon, free from alloys. All material cut 12 inches and under, and with the exception of punchings or stampings, at least ⅛ inch in thickness. Punchings or stampings under 6 inches in diameter maybe any gauge.	234
(6	Electric furnace-bundles. New black steel sheet scrap hydraulically compressed into bundles of size and weight as specified by consumer.	235
(7	Cut structural and plate scrap, 3 feet and under. Clean open hearth steel plates, structural shapes crop ends, shearings, or broken steel tires. Dimensions not less than ¼ inch in thickness, not over 3 feet in length and 18 inches in width. Phosphorus or sulphur not over 0.05 percent.	236
(8	Cut structural and plate scrap, 2 feet and under. Same as cut structural and plate scrap 3 feet anc under, except for length.	237
(9	Cut structural and plate scrap, 1 foot and under. Same as cut structural and plate scrap, 3 feet anc under, except for length.	238

A'I"I'ACHMENT 1.—INDUSTRY SPECIFICATIONS FOR FERROUS SCRAP I—Continued

Basic Open Hearth, Basic oxygen, Electric Furnace, and Blast Furnace Grades,

		ISIS Code Number
(lo)	Silicon/busheling. Clean silicon-bearing steel scrap, not exceeding 12 inches in any dimensions, including new factory busheling (for .example, sheet clippings, stamping), having a silicon content of 0.5 percent to 5.0 percent.	239
(11)	Silicon clippings. Clean steel scrap, including new factory busheling (for example sheet clippings, stampings, etc.), may not include old auto body and fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing minimum one percent silicon.	240
(12)	Foundry steel, 2 feet and under. Steel scrap 1/8 inch and over in thickness, not over 2 feet in length or 18 inches in width. Individual pieces free from attachments. May not include nonferrous metals, cast or malleable iron, cable, vitreous enameled, or metal coated material.	242
(13)	Foundry steel, 1 foot and under. Same specifications as 2-foot material, except for length.	243
(14)	Springs and crankshafts. Clean automotive springs and crankshafts, either new or used.	244
(15)	Alloy free turnings. Clean shoveling steel turnings free from lumps, tangled or matted material, iron borings, or excessive oil containing not more than 0.05 percent phosphorus or sulphur, and free of alloys.	245
(16)	Silicon bundles. Silicon sheet steel scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not less than 75 pounds per cubic foot, having a silicon content of 0.05 percent to 5.0 percent.	250
(17)	Heavy turnings. Short, heavy steel turnings, containing not over 0.05 percent phosphorus or sulphur and free of alloys. May include rail chips. May not include machine shop or other light turnings and must weigh not less than 75 pounds per cubic foot in the original state of production.	251
	Cast Iron Grades	
(1)	Cupola cast. Clean cast iron scrap such as columns, pipes, plates, and casting: of a miscellaneous nature, including automobile blocks and cast iron parts of agricultural and other machinery. Free from stove plate, burnt iron, brake shoes or foreign material. Cupola size, not over 24 inches x 30 inches, and no piece over 150 pounds in weight.	252
(2)	Charging box cast. Clean cast iron scrap in sizes not over 60 inches in length or 30 inches in width, suitable for charging into an open hearth furnace without further preparation. Free from burnt iron, brake shoes, or stove plate.	253
(3)	Heavy breakable cast. Cast iron scrap over charging box size or weighing more than 500 pounds. May include cylinders and driving wheel centers. May include steel which does not exceed 10 percent of the casting by weight.	254
(41	Burnt iron. Burnt cast iron scrap, such as stove parts, grate bara, and miscellaneous burnt iron. May include sash weights or window weighta.	256
(5)	Mixed cast. May include all grades of cast iron except burnt iron. Dimensions not over 24 inches x 30 inches and no piece over 150 pounds in weight.	257
(61	Stove plate. Clean cast iron stove; free from malleable and steel parts, window weights, plow points, or burnt cast iron.	258
(7:	Clean auto cast. Clean auto blocks; free of all steel parts except camshafts, valves, valve springs, and studs. Free of nonferrous and nonmetallic parts.	259
(8	Unstrapped motor blocks. Automobile or truck motors from which steel and nonferrous fittings may or may not have been removed. Free from drive shifts and all parts of frames.	260
(9	Drop broken machinery cast. Clean heavy cast iron machinery scrap that has been broken under a drop. All pieces must be of cupola size, not over 24 inches x 30 inches, and no piece over 150 pounds in weight.	261

ATTACHMENT 1.—1NDUSTR% SPECIFICATIONS FOR FERROUS SCRAP I—Continued

Basic Open Hearth, Basic Oxygen, Electric Furnace, and Blast Furnace Grades.

		ISIS Code Number
(10)	Clean auto cast, /broken, not degreased. Clean auto blocks, free of all steel parts except camshafts, valves, valve springs and studs. Free of nonferrous and nonmetallic parts, and must be broken to cupola size, 150 pounds or less.	262
(11)	Clean auto cast, degreased. Free of all steel parts except camshafts, valves, valve springs, and studs. Free of nonferrous and nonmetallic parts, and must be broken into cupola size, 150 pounds or less.	263
(12)	Malleable. Malleable parts of automobiles, railroad cars, locomotives, or miscellaneous malleable iron castings. Free from cast iron and steel parts and other foreign material.	264

[1] Excerpted from Institute of Scrap Iron & Steel (ISIS) Handbook (1975),

ATTACHMENT 1.—RAILROAD FERROUS SCRAP*

		AAR Number
(1)	Axles, Steel. Solid car and/or locomotive friction-bearing, 8 inches in diameter and under (free of axles with key-way between wheel seats, no axles of shorter lengths than distance between wheel seats to be included).	(2)
(2)	Axles, Steel, Solid car and/or locomotive friction-bearing, over 8 inches in diameter (free of axles with key-way between wheel seats, no axles of shorter lengths than distance between wheel seats to be included).	(2A)
(3)	Axles, Steel. Roller bearing 8 inches in diameter and under (no axles of shorter lengths than distance between wheel seats to be included).	(3)
(4)	Axles, Steel. Roller bearing over 8 inches in diameter (no axles of shorter lengths than distance between wheel seats to be included).	(3A)
(5)	Spikes, Track Bolts and Nuts, and Lock Washers, may include Rail Anchors	(4)
(6)	Tie Plates. Steel	(5)
(7)	Rail Joints, Angle and/or Splice Bars. Steel	(6)
(8)	Bolsters and/or Truck Sides, Frames: Uncut. Cast steel	(9)
(9)	Cast Steel, No. 2. Steel castings, over 18 inches wide and/or over 5 feet long	(11)
(lo)	Cast Steel, No. 1. Steel castings, 18 inches and under, not over 5 feet long, including cut truck side frames and bolsters.	(11A)
(11)	Cast Iron, No. 1. Cast iron scrap, such as columns, pipes, plates, and/or castings of miscellaneous nature, but free from stove plates, brake shoes, and burnt scrap. Must be cupola size, not over 24 inches x 30 inches in dimension and no piece to weigh over 150 pounds. Must be free from foreign material.	(12)
(12)	Cast Iron, No. 2, Pieces weighing over 150 pounds, but not more than 500 pounds. Free from burnt cast.	(13)
(13)	Cast Iron, No. 3. Pieces weighing over 500 pounds; includes cylinders, driving wheel centers and/or all other castings. (Free from hammer blocks or bases.).	(14)
(14)	Cast Iron, No. 4. Burnt cast iron scrap, such as grate bars, stove parts and/or miscellaneous burnt scrap.	(15)
(15)	Cast Iron Brake Shoes. Brake shoes of all types except composition-filled shoes	(16)
(16)	Couplers and/or Knuckles. Railroad car and/or locomotive steel couplers, knuckles and/or locks stripped clean of all other attachments.	(17)

ATTACHMENT 1.—RAILROAD FERROUS SCRAP*—Continued

		AAR Number
(17)	Frogs and/or Switches, uncut. Steel frogs and switches that have not been cut apart, exclusive of manganese.	(18)
(18)	Railbound Manganese Frogs and Switch Points with manganese inserts that have not been cut apart	(18A)
(19)	Malleable. Malleable parts of automobiles, railroad cars, locomotive and/or miscellaneous malleable castings.	(23)
(20)	Melting Steel, Railroad No. 1. Clean wrought iron or steel scrap, ¼ inch and over in thickness, not over 18 inches in width, and not over 5 feet in length. May include pipe ends and material ⅛ inch to ¼ inch in thickness, not over 15 inches x 15 inches. Individual pieces cut so as to lie reasonably flat in charging box.	(24)
(21)	Rail, Steel No. 1. Standard section tee rails, original weight 50 pounds per yard or heavier, 10 feet long and over. Suitable for rerolling into bars and shapes. Free from bent and twisted rails, frog, switch, and guard rails, or rails with split heads and broken flanges. Continuous welded rail may be included provided no weld is over 9 inches from the end of the piece of rail.	(27)
(22)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight of 50 pounds per yard and over, 18 inches long and under.	(28A)
(23)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight of 50 pounds per yard and over, 2 feet long and under.	(28B)
(24)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight of 50 pounds per yard and over, 3 feet long and under.	(28C)
(25)	Rail, Steel No. 3. Standard section tee, girder, and/or guard rails, to be free from frog and switch rails not cut apart, and contain no manganese, cast, welds, or attachments of any kind except angle bara. Free from concrete, dirt, and foreign material of any kind.	(29)
(26)	Sheet Scrap, No. 1. Under 3/16 inch thick, may include hoops, band iron and/or steel, scoops and/or shovels (free of wood). Must be free from burnt or metal coated material, cushion, or other similar springs.	(30)
(27)	Sheet Scrap, No. 2. Galvanized or tinned material and/or gas retorts, and/or any other iron or steel material not otherwise classified.	(31)
(28)	Steel, Tool. (Specify kind in offering.)	(32)
(29)	Steel, Manganese. All kinds of manganese, rail, guard rails, frogs and/or switch points, cut or uncut	(33)
(30)	Steel, Spring. Coil and/or elliptical, minimum thickness ¼ inch maybe assembled or cut apart	(34)
(31)	Steel, Spring. Coil only	(34A)
(32)	Structural, Wrought Iron and/or Steel Uncut. All steel or steel mixed with iron from bridges, structures and/or equipment that has not been cut apart, may include uncut bolsters, brakebeams, steel trucks, underframes, channel bars, steel bridge plates, frog and/or crossing plates and/or other steel of similar character.	(35)
(33)	Tires. All locomotive, not cut to specified lengths	(36)
(34)	Turnings, No. 1. Heavy turninga from wrought iron and/or steel railroad axlea or heavy forgings andl or rail chips, to weigh not leas than 75 pounds per cubic foot. Free from dirt or other foreign material of any kind. Alloy steel scrap may be excluded from these specifications by mutual agreement between buyer and seller.	(38)
(35)	Turnings, Drillings and/or Borings, No. 2. Cast, wrought, steel and/or malleable iron borings, turnings and/or drillings mixed with other metals.	(38A)
(36)	Wheels, No. 1. Cast iron car wheels	(40)
(371	Wheels, No. 3. Solid cast steel, forged, pressed and/or rolled steel car and/or locomotive wheels, not over 42 inches diameter. (Specify kind in offering.).	(42)

ATTACHMENT 1.—RAILROAD FERROUS SCRAP*—Continued

		AAR Number
	(38) Destroyed Steel Cars. Bodies of steel cars cut apart sufficiently to load. (Specify kind.)	(45)
(.39)	Destroyed Steel Car Sides and Box Car Roofs. Cut to a maximum length of. . . and a maximum width of. . . suitable for use in super presses and shears without additional preparation.	(45A)

*Specifications of Association of American Railroads Promulgated by its Purchases and Materials Management Division (Revised 1973).

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP'

		NARI Item	NARI Code Word
(11	No. 1 Copper Wire—Shall consist of No. 1 bare, uncoated, unalloyed copper wire, not smaller than No. 16 B & S wire gauge. Green copper wire and hydraulically compacted material to be subject to agreement between buyer and seller.	2	Barley.
(2)	No. 1 Copper Wire—Shall consist of clean, untinned, uncoated, unalloyed copper wire and cable, not smaller than No. 16 B & S wire gauge, free of burnt wire which is brittle. Hydraulically briquette copper subject to agreement.	3	Berry.
(3)	No. 2 Copper Wire—Shall consist of miscellaneous, unalloyed copper wire having a nominal 96% copper content (minimum 94%) as determined by electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper wire; brass and bronze wire; excessive oil content, iron, and nonmetallic; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquetted copper wire subject to agreement.	4	Brich.
(4)	No. 1 Heavy Copper—Shall consist of clean, unalloyed, uncoated copper clippings, punchings, bus bara, commutator segments, and wire not less than 1/16 of an inch thick, free of burnt wire which is brittle; but may include clean copper tubing. Hydraulically briquetted copper subject to agreement.	5	Candy.
(5)	No. 2 Copper—Shall consist of miscellaneous, unalloyed, copper scrap having a nominal 96% copper content (minimum 94%) as determined by a electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper scrap; brasses and bronzes; excessive oil content, iron and nonmetallic; copper tubing with other than copper connections or with sediment; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquette copper subject to agreement.	6	Cliff.
(6)	Light Copper—Shall consist of miscellaneous, unalloyed copper scrap having a nominal 92% copper content (minimum 88%) as determined by electrolytic assay and shall consist of sheet copper, gutters, downspouts, kettles, boilera, and smiliar scrap. Should be free of the following Burnt hair wire; copper clad; plating racks; grindings; copper wire from burning, containing insulation; radiators; fire extinguishers; refrigerator units; electrotype shells; screening excessively leaded, tinned, soldered scrap; brasses and bronzes; excessive oil, iron and nonmetallic and should be reasonably free of aah. Hydraulically briquette copper subject to agreement. Any items excluded in this grade are also excluded in the higher grades above.	10	Dream.
(7)	Refinery Brass-Shall contain a minimum of 61.3% copper and maximum 5% iron and to consist of braas and bronze solids and turnings, and alloyed and contaminated copper scrap. Shall be free of insulated wire, grindings, electrotype shells and nonmetallic. Hydraulically briquetted material subject to agreement.	11	Drink.
(8)	Copper-Bearing Scrap—Shall consist of miscellaneous copper-containing skimmings, grindings, ashes, irony braas and copper, residues and slags. Free of insulated wires; copper chlorides; unprepared tangled material; large motors; pyrophoric material; asbestos brake linings; fumance bottoms; high lead materials; graphite crucibles; and noxious and explosive materials. Fine powered material by agreement. Hydraulically briquette material subject to agreement.	12	Drove.
(9)	Insulated Copper Wire Scrap-Shall consist of copper wire scrap with various types of insulation. To be sold on a sample or recovery basis, subject to agreement between buyer and seller.	13	Druid.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP[1]—Continued

		NARI Item	NARI Code Word
(lo)	composition or Red Brass—Shall consist of red brass scrap, valves, machinery bearings and other machinery parts, including miscellaneous castings made of copper, tin, zinc, and/or lead. Should be free of semi-red brass castings (78% to 81% copper); railroad car boxes and other similar high-lead alloys; cocks and faucets; closed water meters; gates; pot pieces; ingots and burned brass; aluminum, silicon, and manganese bronzes; iron and nonmetallic. No piece to measure more than 12 inches over any one part or weigh over 100 pounds.	14	Ebony.
(11)	Red Brass Composition Turnings—Shall consist of turnings from red brass composition material and should be sold subject to sample or analysis.	15	Enerv.
(12)	Genuine Babbitt-Lined Brass Bushings—Shall consist of red brass bushings and bearings from automobiles and other machinery, shall contain not less than 12% high tin base babbitt, and shall be free of iron-backed bearings.	16	Eider.
(13)	High Grade-Low Lead Bronze Solids-It is recommended these materials be sold by analysis,	17	Eland.
(14)	3ronze Paper Mill Wire Cloth—Shall consist of clean genuine Fourdrinier wire cloth and screen having a minimum copper content of 87%, minimum tin content of 3% and a maximum lead content of 1 %, free of stainless steel and Monel metal stranding.	18	Elbow.
(15)	High Lead Bronze Solids and Borings—It is recommended that these materials be sold on sample or analysis.	19	Elias.
(16)	Machinery or Hard Brass Solids—Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6%—nor more than 1 1%, and total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.590. Shall be free of lined and unlined standard red car boxes.	20	Engel.
(17)	Machinery or Hard Brass Borings-Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6%—nor more than 11 %, and the total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.5%.	21	Erin.
(18)	Unlined Standard Red Car Boxes (Clean Journals)—Shall consist of standard unlined and/or sweated railroad boxes and unlined and/or sweated car journal bearings, free of yellow boxes and iron-backed boxes.	22	Fence.
(19)	Line Standard Red Car Boxes (Lined Journals)—Shall consist of standard babbitt-lined railroad boxes and/or babbitt-lined car journal bearings, free of yellow boxes and iron-backed boxes.	23	Ferry.
(20)	Cocks and Faucets-Shall consist of mixed clean red and yellow brass, including chrome or nickel-plated, free of gas cocks, beer faucets, and aluminum and zinc base die cast material, and to contain a minimum of 35% semi-red.	24	Grape.
(21)	Mixed Brass Screens-To consist of clean mixed-copper, brass and bronze screens, and to be free of excessively dirty and painted material.	25	Greet.
(22)	Yellow Braas Scrap-Shall consist of brass castings, rolled brass, rod braas, tubing and miscellaneous yellow brasses, including plated braas. Must be free of manganese bronze, aluminum bronze, unsweated radiators or radiator parta, iron, excessively dirty and corroded materials.	26	Honey.
(23)	Yellow Brass Castings—Shall consist of yellow brass castings in crucible shape, no piece to measure more than 12 inches over any one part; and shall be free of brass forgings, silicon bronze, aluminum bronze and manganese bronze, and not to contain more than 15% nickel-plated material.	27	Ivory.
(24)	Old Rolled Brass—Shall consist of old pieces of yellow sheet brass and yellow light tubing brass, free from solder, tinned and nickel-plated material, iron, paint and corrosion, rod brass and condenser tubes.	28	Knife.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP[1]—Continued

		NARI [tern	NARI Code Word
(25)	New Brass Clippings—Shall consist of the cuttings of new unleaded yellow brass sheet or plate to be clean and free from foreign substances and not to contain more than 10% of clean brass punchings under ¼ inch. To be free of Muntz metal and naval brass.	29	Label.
(26)	3rass Shell Cases Without Primers—shall consist of clean fired 70/30 brass shell cases free of primers and any other foreign material.	30	ace.
(27)	3rass Shell Cases With Primers—Shall consist of clean fired 70/30 brass shell cases containing the brass primers and which contain no other foreign material.	31	Lady.
(28)	3rass Small Arms and Rifle Shells, Clean Fired—Shall consist of clean fired 70/30 brass shells free of bullets, iron and any other foreign material.	32	Lake.
(29)	3rass Small Arms and Rifle Shells, Clean Muffled (Popped)—Shall consist of clean muffled (popped) 70/30 brass shells free of bullets, iron and any other foreign material.	33	Jamb.
(30)	Yellow Brass Primer—Shall consist of clean yellow brass primers, burnt or unburnt. Free of iron, excessive dirt, corrosion and any other foreign material.	34	Lark.
(31)	Mixed New Nickel Silver Clippings—Shall consist of one or more nickel silver alloys and the range of nickel content to be specified, free of chrome or any other plating material. Leaded nickel silver clippings should be packed and sold separately. Not to contain more than 10% of clean punchings under ¼ inch.	35	Maize.
(32)	New Nickel Silver Clippings and Solids—Shall consist of new, clean nickel silver clippings, plate, rod and forgings, and other rolled shapes, free of chrome or any other plating material. Must be sold on nickel content specifications such as 1070—12Yo—15Yo—18%-20%. Leaded nickel silver clippings should be packed and sold separately. A description as to its physical characteristics should be made in offering all nickel silver material.	36	Major.
(33)	New Segregated Nickel Silver Clippings—Shall consist of one specified nickel silver alloy. Not to contain more than 10% of clean punchings under ¼ inch.	37	Malar.
(34)	Old Nickel Silver—Shall consist of old nickel silver sheet, pipe, rod, tubes, wire, screen, soldered or unsoldered. Must not be trimmed seams alone and it is also to be free of foreign substances, iron rimmed material or other metals.	38	Malic.
(35)	Braas Pipe—Shall consist of brass pipes free of plated and soldered materials or pipes with cast brass connections. To be sound, clean pipes free of sediment and condenser tubes,	39	Melon.
(36)	Nickel Silver Castings—To be packed and sold separately.	40	Naggy.
(37)	Nickel Silver Turnings—To be sold by sample or analysis.	41	Niece.
(38)	Yellow Brass Rod Turnings-Shall consist of strictly rod turnings, free of aluminum, manganese, composition, Tobin and Muntz metal turnings; not to contain over 3% free iron, oil or other moisture; to be free of grindings and babbitts; to contain not more than 0.3% tin and not more than 0.15% alloyed iron.	42	Night.
(39)	New Yellow Brass Rod Ends—Shall consist of new, clean rod ends from free turning braas rods or forging rods, not to contain more than 0.3% tin and no more than 0.15% alloyed iron. To be free of Muntz metal and naval brass or any other alloys. To be in pieces not larger than 12 inches and free of foreign matter.	43	Noble.
(40]	Yellow Brass Turnings—Shall consist of yellow brass turnings, free of aluminum, manganese and composition turnings; not to contain over 3% of free iron, oil or other moisture; to be free of grindings and babbitta. To avoid dispute, to be sold subject to sample or analysis.	44	Nomad.
(41)	Mixed Unsweated Auto Radiators—Shall consist of mixed automobile radiators, to be free 01 aluminum radiators, and iron finned radiatora. All radiators to be subject to deduction ol actual iron. The tonnage specification should cover the gross weight of the radiators, unless otherwise specified.	45	Ocean.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP[1]—Continued

		NARI [tern	NARI Code Word
(42)	Admiralty Brass Condenser Tubes—Shall consist of clean sound Admiralty condenser tubing which may be plated or unplated, free of nickel alloy, aluminum alloy, and corroded material.	46	Pales.
(43)	Aluminum Brass Condenser Tubes—Shall consist of clean sound condenser tubing which may be plated or unplated, free of nickel alloy and corroded material.	47	Pallu.
(44)	Muntz Metal Tubes—Shall consist of clean sound Muntz metal tubing which may be plated or unplated, free of nickel alloy, aluminum alloy, and corroded material.	48	Palms.
(45)	Plated Rolled Brass—Shall consist of plated brass sheet, pipe, tubing, and reflectors, free of soldered, tinned, corroded, and aluminum painted material, Muntz metal and Admiralty tubing, and material with cast brass connections.	49	Pants.
(46)	Manganese Bronze Solids—Shall have a copper content of not less than 55%, a lead content of not more than 1%, and shall be free of aluminum bronze and silicon bronze.	50	Parch.
(47)	Scrap Lead-Soft-Shall consist of clean soft scrap lead, free of all foreign materials such as dresses, battery lead, lead covered cable, hard lead, collapsible tubes, foil, type metals, zinc, iron and brass fittings, dirty chemical lead. Free of radioactive materials.	51	Racks.
(48)	Mixed Hard/Soft Scrap Lead—Shall consist of clean lead solids, free of foreign materials, such as dresses, battery lead, lead covered cable, collapsible tubes, type metals, zinc, iron and brass fittings, dirty chemical lead. Free of radioactive materials.	52	Radio.
(49)	Battery Plates—If cells (plates, separators, and lugs) or battery plates, must be reasonably free of rubber. Maybe bought and sold by assay or as agreed between buyer and seller.	53	Rails.
(50)	Drained Whole Batteries—Batteries to be free of liquid and extraneous material content. Aircraft (aluminum or steel cased) and other special batteries subject to special agreement.	54	Rains.
(51)	Battery Lugs—Shall be free from battery plates, rubber and foreign material. A minimum of 97% metallic content is required.	55	Rakes.
(52)	Pewter—Shall consist of tableware and soda fountain boxes but should contain a minimum of 84% tin. Siphon tops to be accounted for separately. Material must be free of brass, zinc, and other foreign metals.	56	Ranks.
(53)	Block Tin—Block tin must assay minimum of 98% tin, and be free of liquids, solder, and brass connections, pewter, pumps, pot pieces, dirt.	57	Ranch.
(54)	High Tin Base Babbitt—Shall contain a minimum of 78% tin and be free of brassy or zincy metals.	58	Raves.
(55)	Lead Covered Copper Cable-Free of armored covered cable, and foreign material.	59	Relay.
(56)	Lead Weights-May consist of lead balances with or without iron, as may be specifed. Free of foreign matters.	61	Ropes.
(57)	Mixed Common Babbitt—Shall consist of lead base bearings metal containing not less than 8% tin, free from Allens metal, ornamental, antimonial and type metal. Must be free from all zincy and excessive copper in the alloy.	62	Roses.
(58)	Old Zinc Die Cast Scrap-Shall consist of miscellaneous old zinc base die castings, with or without iron and other foreign attachments. Must be free of borings, turnings, dross pieces, chunks, melted pieces and skimmings. All unmeltables, dirt, foreign attachments, and volatile substances (such as rubber, cork, plastic, grease, etc.) are deductible. Material containing in excess of 30% iron will not constitute good delivery.	63	saves.
(59:	New Zinc Die Cast Scrap-Shall consist of new or unused, clean zinc base die castings. Castings to be unplated, unpainted, and free from corrosion.	64	scabs.
(60)	New Plated Zinc Die Cast Scrap-Shall consist of new *or* unused clean, plated zinc base die castings, free from corrosion.	65	Scope.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP [1] —Continued

		NARI Item	NARI Code Word
(61)	Zinc Die Cast Automotive Grilles—Shall consist of clean, old or used zinc base die cast automotive grilles, free from soldered material. All foreign attachments and extraneous materials are deductible.	66	scoot.
(62)	Old Scrap Zinc—Shall consist of clean dry scrap zinc, such as sheets, jar lids, clean, unalloyed castings and anti-corrosion plates. Borings and turnings are not acceptable. Material must not be excessively corroded or oxidized. All foreign attachments and extraneous materials are deductible.	67	Score.
(63)	New Zinc Clippings-Shall consist of any new pure zinc sheets or stamping free from corrosion. To contain no foreign material or attachment. Printers zinc, such as engravers zinc, lithograph sheets and addressograph plates subject to special arrangements. Printers zinc to be free of routings.	68	Screen.
(64)	New Pure Aluminum Clippings—Shall consist of new, clean, unalloyed sheet, clippings and/ or aluminum sheet cuttings, free from oil and grease, foil and any other foreign substances and from punchings less than ½ inch in size.	76	Table.
(65)	Mixed Low Copper Aluminum Clippings and Solids-Shall consist of new, clean, uncoated and unpainted low copper aluminum scrap of two or more alloys and be free of 7000 series, foil, hair wire, wire screen, dirt, and other foreign substances. Grease and oil not to total more than 1%. Also free from punchings less than ½ inch in size. New can stock subject to arrangement between buyer and seller.	77	Taboo.
(66)	Mixed Old Alloy Sheet Aluminum—Shall consist of clean, old alloy sheet aluminum of two or more alloys and be free of 7000 series, foil, venetian blinds, castings, hair wire, screen wire, food or beverage containers, pie plates, dirt, and other foreign substances. Oil and grease not to total more than 1%. Up to 10% painted sidings and awnings permitted.	78	Tabor.
(67)	Scrap Sheet and Sheet Utensil Aluminum—Shall consist of clean, unpainted old 2S or 3S aluminum sheet and sheet utensils, free from hub caps, radiator shells, airplane sheet, foil, food or beverage containers, pie plates, oil cans and bottle caps, dirt, and other foreign substances. Oil and grease not to total more than 1%.	79	Taint.
(68)	New Aluminum Can Stock—Shall consist of new low copper aluminum can stock and clippings, clean, lithographed or not lithographed, and coated with clear lacquer but free of lids with sealers, iron, dirt and other foreign contamination. Oil not to exceed 1%.	80	Take.
(69)	Old Can Stock-Shall consist of clean, old aluminum cans, decorated or clear, free of iron, dirt, liquid and/or other foreign contamination.	81	Talc.
(70)	Painted Siding—Shall consist of clean, low copper aluminum siding scrap, painted one or two sides, free of iron, dirt, corrosion, fiber backing or other types of foreign contamination.	84	Tale.
(71)	Coated Scrap-Shall consist of awnings, venetian blinds, vinyl, plastic, etc. Shall be subject to special arrangements between buyers and sellers.	85	Talent.
(72)	Aluminum Copper Radiators-Shall consist of clean aluminum and copper radiators, and/ or aluminum fins or copper tubing, free of brass tubing, iron and other foreign contamination.	86	Talk.
(73)	New Pure Aluminum Wire and Cable-Shall consist of new, clean, unalloyed aluminum wire or cable free from hair wire, wire screen, iron, insulation and any other foreign substance.	88	Talon.
(74)	New Mixed Aluminum Wire and Cable-Shall consist of new, clean unalloyed aluminum wire or cable which may contain up to 100% 6000 series wire and cable free from hair wire, wire screen, iron, insulation and any other foreign substance..	89	Tann.
(75)	Old Pure Aluminum Wire and Cable-Shall consist of old, unalloyed aluminum wire or cable containing not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and any other foreign substance.	90	Taste.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP[1]—Continued

		JARI [tern	NARI Code Word
(76)	Old Mixed Aluminum Wire and Cable—Shall consist of old, unalloyed aluminum wire and cable which may contain up to 10% 6000 series wire and cable with not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and any other foreign substance.	91	Tassel.
(77)	Aluminum Pistons (a) Clean Aluminum Pistons—Shall consist of clean aluminum pistons to be free from struts, bushings, shafts, iron rings and any other foreign materials. Oil and grease not to exceed 2%. (b) Aluminum Pistons with Struts—Shall consist of clean whole aluminum pistons with struts to be free from bushings, shafts, iron rings and any other foreign materials. Oil and grease not to exceed 2%. (c) Irony Aluminum Pistons-Should be sold on recovery basis, or by special arrangements with purchaser.	92	Tarry.
(78)	Segregated Aluminum Borings and Turnings—Shall consist of clean, uncorroded aluminum borings and turnings of one specified alloy only and subject to deductions for. fines in excess of 3% through a 20 mesh screen and dirt, free iron, oil, moisture and all other foreign materials. Material containing iron in excess of 10% and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery.	93	Teens.
(79)	Mixed Aluminum Borings and Turnings—Shall consist of clean, uncorroded aluminum borings and turnings of two or more alloys and subject to deductions for fines in excess of 3% through a 20 mesh screen and dirt, free iron, oil, moisture and all other foreign materials. Material containing iron in excess of 10% and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery. To avoid dispute, should be sold on basis of definite maximum zinc, tin and magnesium content.	94	Telic.
(80)	Mixed Aluminum Castings-Shall consist of all clean aluminum castings which may contain auto and airplane castings but no ingots, and to be free of iron, dirt, brass, babbitt and any other foreign materials. Oil and grease not to total more than 2%.	95	Tense.
(81)	Wrecked Airplane Sheet Aluminum—Should be sold on recovery basis or by special arrangements with purchaser.	96	Tepid.
(82)	New Aluminum Foil—Shall consist of clean, new, pure, uncoated, unalloyed aluminum foil, free from anodized foil, radar foil and chaff, paper, plastics, or any other foreign materials. Hydraulically briquetted material by arrangrnent only.	97	Terse.
(83)	Old Aluminum Foil—Shall consist of clean, old, pure, uncoated, unalloyed aluminum foil, free from anodized foil, radar foil and chaff, paper, plastics, or any other foreign materials. Hydraulically briquetted material by arrangement only.	98	Testy.
(84)	Aluminum Grindings—Should be sold on recovery basis or by special arrangements with purchaser.	99	Thigh.
(85)	Segregated New Aluminum Alloy Clippings and Solids-Shall consist of new, clean, uncoated and unpainted aluminum scrap of one specified aluminum alloy only and be free of foil, hair wire, wire screen, dirt, and other foreign substances. Oil and grease not to total more than 1 %. Also free from punchings less than ½ inch in size. New can stock subject to arrangement between buyer and seller.	102	Tooth.
(861	Mixed New Aluminum Alloy Clippings and Solids-Shall consist of new, clean, uncoated and unpainted aluminum scrap of two or more alloys free of 7000 series and be free of foil, hair wire, wire screen, dirt, and other foreign substances. Oil and grease not to total more than 1 %. Also free from punchings less than % inch in size. New can stuck subject to arrangement between buyer and seller.	103	Tough.
[87;	Segregated New Aluminum Castings, Forgings and Extrusions—Shall consist of new, clean, uncoated aluminum castings, forgings, and extrusions of one specified alloy only and be free from sawings, stainless steel, zinc, iron, dirt, oil, grease and other foreign substances.	104	Tread.

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP [1]—Continued

		NARI Item	NARI Code Word
(88)	Aluminum Auto Castings-Shall consist of all clean automobile aluminum castings of sufficient size to be readily identified and to be free from iron, dirt, brass, babbitt bushings, and any other foreign materials. Oil and grease not to total more than 2%.	105	Trump.
(89)	nsulated Aluminum Wire Scrap-Shall consist of aluminum wire scrap with various types of insulation. To be sold on a sample or recovery basis, subject to agreement between buyer and seller.	106	Twang.
(90)	Aluminum Airplane Castings-Shall consist of clean aluminum castings from airplanes and be free from iron, dirt, brass, babbitt bushings, brass bushings, and any other foreign materials. Oil and grease not to total more than 2%.	107	Twist.
(91)	Magnesium Clips—Shall consist of clean magnesium clips in crucible size, free of copper, aluminum, and zinc flashings and excessive oil and grease. To be free of all foreign attachments.	109	Wafer.
(92)	Magnesium Scrap-Shall consist of magnesium castings, magnesium engine blocks and transmission casings, bomber and car wheels, extrusions, and sheet. Material to be free from brass and copper inserta and all foreign attachments. To be free of anodes, hollow castings and explosivea. Percentages of and penalties for dirt, oil, grease, and iron to be subject to agreement between buyer and seller. Excessively large pieces to be negotiated between buyer and seller.	110	Walnut.
(93)	Magnesium Engraver Plates-To be free of copper, aluminum, zinc, and electrotype plates. To be clean and free of all foreign attachments. Magnesium plates shipped loose by agreement between buyer and seller.	111	Wine.
(94)	Magnesium Dockboards—Shall consist of clean magnesium dockboard cut or broken to size agreed upon by buyer and seller. To be free of all foreign attachments.	112	Wood.
(95)	Magnesium Turnings-It is recommended that these materials be sold by special arrangement between buyer and seller.	113	World.
(96)	New Nickel Scrap-Shall consist of clean new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Nickel minimum 99%. Free of castings, as well as any foreign attachments or other contamination.	114	Aroma.
(97)	Old Nickel Scrap-Shall consist of old and/or new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Material to contain a minimum of 98% nickel. This grade to be free of castings, soldered, brazed, sweated, or painted material, other metallic coating, foreign attachments, and any other contamination.	116	Burly.
(98)	Miscellaneous Types of Nickel Scrap-Shall consist of miscellaneous types of nickel scrap, such as carbonized scrap, castings, strippings, peelings, baskets, and/or turnings. Particulars regarding physical description, assay, and packaging to be agreed on between buyer and seller.	117	Cache.
(99)	New Cupro-Nickel Clips and Solids-Shall consist of clean, new segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel tube, pipe, sheet, plate, or other wrought solid forms. Must be free of foreign attachment or any other contamination.	118	Dandy.
(loo)	Cupro-Nickel Solids-Shall consist of old, and/or new, segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro-nickel tube, pipe, sheet, plate or other wrought solid forms. Maximum 2% sediment allowable. Any other forms of cupro nickel solids such as castings, grates, risers, spills, etc., packaged separately, may or may not be included, only upon agreement between buyer and seller. Must be free of foreign attachments and all other contamination. Other particulars concerning physical descrip tion, analysis and packaging to be ageed upon between buyer and seller.	119	Daunt.
(101:	Soldered Cupro-Nickel Solids-Shall consist of segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel solids, soldered, brazed, or sweated, must be free of trimmed seams and edges and all other contamination.	120	Delta,

ATTACHMENT 2.—INDUSTRY SPECIFICATIONS FOR NONFERROUS SCRAP 1-Continued

		NARI [tern	NARI Code Word
(102)	Cupro-Nickel Spinnings, Turnings, Borings-Shall consist of clean segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel spinnings, turnings, or borings. Particulars concerning physical description, analysis, packaging, to be agreed upon between buyer and seller.	121	Decoy.
(103)	New Monel Clippings and Solids—Shall consist of clean, new, Regular and/or R-Monel sheet, plate, bar, rod, tube, pipe, or any other wrought scrap, free of any foreign attachments or any other contamination.	122	Hitch.
(104)	Old Monel Sheet and Solids-Shall consist of new and/or old clean Regular and/or R-Monel sheet, pipe, plate, rod, and all other wrought scrap solids. Must be free of foreign attachments or any other contamination. (To exclude soldered, brazed, and unclean sweated material).	123	[deal
(105)	K-Monel Rods and Other Solids—Shall consist of clean K-Monel rods and other solids	124	Indian.
(106)	Soldered Monel Sheet and Solids-Shall consist of soldered and/or brazed, Regular or miscellaneous grades of Monel alloys (with basic minimum 63% nickel contained in any alloy itself), in either wrought or cast form. Must be free of trimmed seams and edges, nonmetallic filling, foreign attachments, and all other contamination. Particulars concerning physical description, assay, and packaging to be agreed upon between buyer and seller.	125	Junto.
(1071	Monel Castings-Shall consist of various types of clean Monel castings, assaying minimum 60% nickel. Must be free of foreign attachments, or any other contamination.	126	Lemon.
(108	Monel Turnings—Shall consist of mixed Monel turnings and borings containing a minimum of 60% nickel content, on a dry basis.	127	Lemur.
(109;	200 Series Stainless Steel Scrap Solids-Shall consist of all types of clean AISI Series Stainless Steel Scrap Solids, which contain a maximum of 0.5% copper, free of foreign attachments and other contamination.	128	Pekoe.
(110	Stainless Steel Scrap-Shall consist of clean 18-8 type stainless steel clips and solids containing a minimum 7% nickel, 16% chrome, and have a maximum of 0.5% molybdenum, 0.5% copper, 0.045% phosphorous, and 0.03% sulfur, and otherwise free of harmful contaminants. Particulars concerning physical description, grading, additional analysis, and preparation to be agreed upon between buyer and seller.	129	Sabot.
(111,	Stainless Steel Turnings—Shall consist of clean 18-8 types stainless steel turnings containing a minimum of 7% nickel and 16% chrome, and be free of nonferrous metals, nonmetallic, excessive iron, oil and other contaminants. Particulars concerning physical description, assay, packaging to be agreed upon between buyer and seller.	130	Ultra.
(112	11-14% Chrome Stainless Scrap-Straight chrome stainless scrap shall contain 11-14% chrome, phosphorous and sulpher 0.03970 maximum, and shall not contain over 0.5% nickel and otherwise be free from harmful contaminants. Material to be prepared to individual consumer's specifications.	131	Rusten.
(113	14-18% Chrome Stainless Scrap-Straight chrome stainless scrap shall contain 14-18% chrome, phosphorous and sulphur 0.03% maximum, and shall not contain over 0.5% nickel and otherwise be free from harmful contaminants. Material to be prepared to individual consumer's specifications.	132	Rusthirty.
(114	Edison Batteries-To be sold free of crates, copper terminal connectors, and drained free of excess liquid; to be free of type "B" batteries.	133	Vaunt.

[1] Extracted from National Association of Recycling Industries (NARI) Circular NF-82.

ATTACHMENT 3.—PAPER SCRAP*

I (See Table V-6)

		PSIA ITEM
(1)	Mixed Paper—Consists of a mixture of various qualities of paper not limited as to type of packing or fibre content. Prohibitive materials may not exceed ....2% Total Outthrows may not exceed 10%	(1)
(2)	Super Mixed Paper—Consists of a baled clean sorted mixture of various qualities of papers containing less than 10% of groundwood stock, coated or uncoated. Prohibitive materials may not exceed .... % of 1% Total Outthrows may not exceed 3%	(3)
(3)	News—Consists of baled newspapers containing less than 5% of other papers .... Prohibitive materials may not exceed .... ½ of 1% Total Outthrows may not exceed 3%	(6)
(4)	Special News—Consists of baled sorted fresh newspapers, not sunburned, free from papers other than news, containing not more than the normal percentage of rotogravure and colored sections. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(7)
(5)	Special News De-Ink Quality—Consists of baled sorted fresh dry newspapers, not sunburned, free from magazines, white blank, pressroom over-issues, and paper other than news, containing not more than the normal percentage of rotogravure and colored sections. This packing must be free from tare. Prohibitive materials-None permitted. Total Outthrows may not exceed ....% of 1%	(8)
(6)	Corrugated Containers—Consists of baled corrugated containers having liners of either test liner jute or kraft. Prohibitive materials may not exceed ....1% Total Outthrows may not exceed 5%	(11)
(7)	Used Brown Kraft—Consists of baled brown kraft bags free of objectionable liners or contents .... Prohibitive materials—None permitted. Total Outthrows may not exceed ....% of 1%	(15)
(8)	Colored Tabulating Cards—Consists of printed colored or manila cards, predominantly sulphite or sulphate, which have been manufactured for use in tabulating machines. Unbleached kraft cards are not acceptable. Prohibitive materials—None permitted. Total Outthrows may not exceed 1%	(36)
(9)	Manila Tabulating Cards—Consists of printed manila-colored cards, predominantly sulphite or sulphate, which have been manufactured for use in tabulating machines. This grade may contain manila-colored tabulating cards with tinted margins. Prohibitive materials—None permitted. Total Outthrows may not exceed 1%	(37)
(lo)	Sorted Colored Ledger—Consists of printed or unprinted sheets, shavings, and cuttings of colored or white sulphite or sulphate ledger, bond, writing, and other papers which have a similar fibre and filler content. This grade must be free of treated, coated, padded, or heavily printed stock. Prohibitive materials-None permitted. Total Outthrows may not exceed 2%	(38)

ATTACHMENT 3.—PAPER SCRAP* —Continued

(See Table V-6)

		PSIA [TEM
(11)	Manifold Colored Ledger—Consists of sheets and side trim of new printed or unprinted colored or white sulphite or sulphate papers such as are used in the manufacturing of manifold forms, continuous forms, register forms, and similar printed papers. Those forms used once for machine data processing may be included. All stock must be untreated and uncoated. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(39)
(12)	Sorted White Ledger—Consists of printed or unprinted sheets, shavings, guillotined books, quire waste, and cuttings of white sulphite or sulphate ledger, bond, writing paper, and all other papers which have a similar fibre and tiller content. This grade must be free of treated, coated, padded, or heavily printed stock. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(40)
(13)	Manifold White Ledger—Consists of sheets and side trim of new printed or unprinted white sulphite or sulphate papers such as are used in the manufacturing of manifold forms, continuous forms, register forms, and similar printed papers. Those forms used once for machine data processing may be included. All stock must be unt rested and uncoated. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(41)
(s4)	Computer Printout—Consists of white sulphite or sulphate papers in forms manufactured for use in data processing machines. This grade may contain colored stripes and/or computer printing, and may contain not more than 5 percent of groundwood in the packing. All stock must be untreated and uncoated. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(42)
(15)	Coated Book Stock—Consists of coated bleached sulphite or sulphate papers, printed or unprinted in sheets, shavings, guillotined books or quire waste. A reasonable percentage of papers containing fine groundwood may be included. Prohibitive materials—None permitted. Total Outthrows may not exceed 2%	(43)
(16)	Printed Bleached Sulphate Cuttings—Consists of printed bleached sulphate cuttings, free from misprint sheets, printed cartons, wax, greaseproof lamination, gilt, and inks, adhesives or coatings that are nonsoluble. Prohibitive materials may not exceed ..... % of 1% Total Outthrows may not exceed 2%	(45)

*Selected entries have been excerpted from the Paper Stock Institute of America (a commodity division of NARI) Circular PS-83.

ATTACHMENT 4.—DEFENSE PROPERTY DISPOSAL SERVICE SCRAP CLASSIFICATION LIST

Scrap Commodity and Definition	SCL Code
FERROUS	
Contaminated and mixed iron and steel scrap. Highly enameled stock, contaminated paint cans, tin cans, borings and turnings, highly corroded, dirty, and containing excessive oil, and other inferior grades of metal prohibitive to other classifications.	E1L
Heavy breakable cast	E1Q
Miscellaneous steel scrap. Consists of inert ordnance items (practice bombs, empty projectiles, empty cartridge cases, etc). This material may conform to a prepared grade of iron and steel scrap, however, it will be segregated as a safety factor.	E1M
Mixed Cast	E1R
Mixed iron and steel borings and turnings	E1G
No. 1 heavy melting steel	E1A
No. 2 heavy melting steel	E1B
No. 1 steel bundles	EIE
No. 2 steel bundles	E1F
No. 1 steel busheling	E1C
No. 2 steel busheling	EID
Small arms parts requiring demilitarization	E1T
Stove plate	E1O
Stripped engine block	EIN
Tin can and terne plate	EIH
Tool steel	E1S
Unprepared heavy melting iron and steel scrap. Random lengths, widths, and thicknesses not suitable for hydraulic compression.	E1I
Unprepared light melting steel suitable for compression into No. 1 bundles	EIJ
Unprepared light melting steel suitable for compression into No. 2 bundles	E1K
Unstrapped engine blocks	EIP
Vehicles and Components	
Steel tank track, without rubber pads	E1U
Steel tank track, with rubber pads	EIV
Steel chain	EIW
Vehicles, commercial automobiles	E2A
Vehicles, commercial trucks	E2B
Vehicles, tactical, all types	E2C
Vehicles, armored	E2D
Vehicles, special purpose	E2E
Tank trailers	E2F
NONFERROUS	
Aluminum.	
Aluminum drew	DIG
Aluminum foil, aluminum screen	DIB
Sweated aluminum pigs and ingots	D1F
Cast aluminum, engine blocks, transmissions, axel assemblies, and vehicular parts	DIJ
Fired aluminum	D1I
Irony aluminum. Should be segregated from normal generations of wrecked aircraft aluminum because of the higher percentage of aluminum recovery. Consists of solids generated from obsolete or rejected parta, components, or accessories from which all nonaluminum parts have not been removed	DID
Aluminum solids. Pure old cable, sheet, and sheet utensils, old castings and forgings free of nonaluminum attachments.	D1C
Aluminum sheet. Plant scrap, generated by shearing, clipping, cutting, blanking, or similar process, also defective, rejected, or otherwise discarded wrought aluminum parts castings. Must be free of foreign material.	DIA
Wrecked aircraft. Aluminum consisting of at least 50% aluminum by weight, recovered from wreckage of aircraft, salvaging of grounded and obsolete aircraft; demilitarization of combat or tactical aircraft, or salvaging of rejected airframes and components. Do not include magnesium scrap which is prohibitive to aluminum smelting and processing.	DIE
Wrecked helicopters	DIH
Brass	
Brass, without foreign attachments	D4E

ATTACHMENT 4.—DEFENSE PROPERTY DISPOSAL SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	SCL Code
Brass, with foreign attachments	D4F
Brass, fired	D2E
22 caliber expended cartridge cases	D3A
30 caliber expended cartridge cases	D3B
38 caliber expended cartridge cases	D3C
45 caliber expended cartridge cases	D3D
50 caliber expended cartridge cases	D3E
5.56 mm expended cartridge cases	D3F
7.62 mm expended cartridge cams	D3G
9.00 mm expended cartridge cases	D3H
12 gauge shotgun shells, expended	D31
Guilding metal	D4N
Bronze, without foreign attachments	D4H
Copper	
Armor cable, scrap	D4K
Copper, without foreign attachment. Miscellaneous copper free of screens, readily removable iron, lead coated copper, and electrotype shells. Free of excessive lead, solder, paint, tar, and scale.	D4A
Mixed copper base alloys. Various grades of copper base alloys free from excessive contamination and other materials.	D2A
Copper cable, lead covered. Tinned and untinned copper wire and cable covered with a sheathing of lead, free of steel armored and other metallic coverings.	D4B
Cupro-Nickel, without foreign attachments	D4M
Cupro-Nickel, with attachments	D4P
Electric motor, scrap	D4J
Insulated copper wire and cable. Tinned and untinned copper wire, cable and pieces covered with rubber, plastic, paint, enamel, fabric, and other insulation free of steel armored and other metallic material, asbestos covering and porcelain.	D4C
Mixed copper base alloy borings and turnings. Should be kept as free from oil and other impurities as possible.	D2C
Radiators made of copper base alloys. Vehicular, unsweated	D2D
Transformers, scrap	D4L
Copper. Copper with foreign attachments	D4D
Mixed copper base alloys. Copper base alloys with foreign attachments not economically removable	D2B
High Temperature Alloys*	
High temperature alloys not assignable to an established group	T01
High temperature alloy group 3. 1-10% Ni, 12-16% Cr, 50-67% Co	T03
High temperature alloy group 4. 55% Ni, 16% Cr	T04
High temperature alloy group 5. 2-20% Ni, 13-27% Cr, 10-60% Co	T05
High temperature alloy group 6.2594 Ni, 16% Cr	T06
High temperature alloy group 7. 1-25% Ni, 8-16% Cr	T07
High temperature alloy group 8. 70-74% Ni, 15% Cr	T08
High temperature alloy group 9.2090 Ni, 20% Cr, 40% Co	T09
High temperature alloy group 10. 60% Ni, 30% Cu	T10
High temperature alloy group 14. 12-20% Ni, 24-25% Cr	T14
High temperature alloy group 15. 2-15% Ni, 26-27% Cr, 50-60% Co	T15
High temperature alloy group 16. 75-80% Ni, 20-21% Cr	T16
High temperature alloy group 18. 55% Ni, 19% Cr, 13% Co	T18
High temperature alloy group 20. 37% Ni, 18% Cr, 20% Co	T20
High temperature alloy group 22. 75% Ni, 20% Cr	T22
High temperature alloy group 23. 26-30% Ni, 13-20% Cr	T23
High temperature alloy group 25. 30% Ni, 25% Cr, 30% Co	T25
High temperature alloy group 26. 36% Ni	T26
High temperature alloy group 27. 60% Ni, 15% Cr	T27
High temperature alloy group 28. 60% Ni, 25% Cr, 12% Co	T28
High temperature alloy group 29. 58% Ni, 19% Cr, 18% Co	T29
High temperature alloy group 30. 64% Ni, 8% Cr, 10% Co	T30
High temperature alloy group 32. 45% Ni, 22% Cr, 1.5% Co	T32
High temperature alloy group 33. 35% Ni, 15% Cr	T33
High temperature alloy group 55.909. W	T55
High temperature alloy group 60. 80% Ti	T60
High temperature alloy group 62. Beryllium (Be)	T62

ATTACHMENT 4.—DEFENSE PROPERTY DISPOSAL SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	SCL Code
Lead:	
Aircraft batteries (lead-acid type)	D5B
Lead without attachments	D5D
Lead battery plates	D5C
Other grades of lead. Common babbitt (low tin content), high speed babbitt (high tin content), and block tin (high tin content) usually found in coil pipe.	D5E
Sealed (acid-filled) batteries	D5G
Vehicle, industrial, and submarine batteries (lead-acid type)	D5A
Magnesium. Segregate clean and unclean grades. (Titanium—Use T6Ø.) (Carbide throwaway inserts, tungsten—use T55).	DØ6
Mercury and nickel-cadmium batteries-nonprecious metal-bearing	D12
Stainleas steep scrap*	SØØ
Stainless steel alloy group 1. (See SCL codes identifying high temperature and stainless steel alloy segregation groups.) 7-13% Ni, 17–19% Cr.	SØ1
Stainless steel alloy group 2. O-2% Ni, 12-16% Cr	SØ2
Stainless steel alloy group 12.490 Ni, 17% Cr	S12
Stainless steel alloy group 17. 2-9% Ni, 12-20%Cr	S17
Stainless steel alloy group 21. 14% Ni, 14% Cr	S21
Stainless steel alloy group 24. 12% Ni, 25% Cr	324
Stainless steel, magnetic	S3B
Stainless steel, nonmagnetic	S3A
Chrome nickel	S3C
Nickel, miscellaneous	S3D
Zinc scrap	DØ9
'Beryllium (Be), Chromium (Cr), Cobalt (Co), Copper (Cu), Nickel (Ni), Titanium (Ti)Tungsten (W)	
NONMETALLIC	
Asbestos, non friable	HØ1
Ashes, waste (coal or wood)	H1Ø
Chemical scrap:	
Chemical scrap, and related materials nonprecious metal-bearing	HØ2
Dehydrating agent, Grade A	HØ3
Cullet	HØ5
Electronic:	
Electrical and electronic residue not containing precious metals	HØ9
Electronic tube, residue	H11
Food:	
Bones and meat trimmings	B02
Cooked grease. Clean and rough, including spent frying fats	B03
Garbage, suitable for animal consumption or other use. Free of coffee grounds, onion hulls, peach pits, fish heads, tea leaves, banana peels, citrus fruit rinds, excessive grease, chicken feathers, corn husks, sweepings, paper, waxed cartons, trash, and similar items which will destroy the value of the item for hog feeding or other uses.	BØ1
Trap grease	B04
Leather	H07
Magnetic tape. Used Automatic Data Processing (ADP) computer magnetic tape no longer suited for ADP operations.	H14
Miscellaneous scrap not otherwise classifiable	H13
Paper:	
Books and magazines	AØ4
Ledger. White ledger stock should be segregated from colored ledger stink	AØ2
Mixed -paper. Free of any nonpaper substances that cannot be manufactured into paper or products by the process normally used for making paper. Obsolete forms with carbon inserts should be segregated and sold separately.	AØ5
Newspaper. Offer for sale as "No. 1 News," consisting of clean waste newspaper	AØ3
Old corrugated and cardboard..	A06
Tabulating cards. Manila-colored (including manila-colored cards with tinted edges) cards should be segregated and sold separately from other colored cards.	AØ1
Petroleum Products:	
Fuel oil, jet fuel used and similar materials	H16
Lubricating oil used (motor vehicle typea and similar)	H15
Oil, lubricants, grease used	H17

ATTACHMENT 4.—DEFENSE PROPERTY DISPOSAL SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	SCL Code
Synthetic base aircraft turbine engine oil, waste (MIL-L-7808, 8188, and 23699)	H18
Wax scrap, and related materials	H19
Plastic	H08
Plastic sonobuoy containers	H04
Rope	C05
Hawser, scrap	C1D
Rubber:	
Rubber inner tubes. aircraft	G03
Rubber inner tubes—vehicular	G04
Rubber scrap not otherwise classifiable	G05
Rubber tires—aircraft	G01
Rubber tires—vehicular	G02
Rubbish, trash, or any type of debris from segregation	B00
Textiles	
Burlap. Includes Osnaburg	C01
Canvas	C02
Cotton comforters, scrap	C1B
Cotton mattresses, scrap	C1C
Cotton rags	C09
Nylon rags	C07
Polyester, scrap	C1E
Poncho, scrap	C1F
Rags, miscellaneous, not covered in other SCL codes	C03
Rayon rags	C06
Rubberized clothing and equipage scrap	C1G
Silk rags	C10
Sleeping bags, scrap	C1H
Textile scrap, miscellaneous	CIA
Webbing	C04
Wool rags	C08
Tile, concrete, bricks, clay, and crockery	H06
Unsegregated scrap. Scrap material identified by this SCL normally is intended to be segregated into other scrap commodities.	H24
Wood scrap	F01
PRECIOUS METALS	
Silver chloride-magnesium batteries (battery construction consists of silver chloride positive plates with aluminum-zinc-magnesium alloy negative plates and uses water as the electrolyte). Examples: MK35, MK61, MK67 torpedo batteries, and sonobouy batteries.	PB1
Silver zinc submarine batteries consisting of large (30 lbs. and over) batteries/cells which when in use are interconnected to form one large battery. Cases may be of fiberglass or plastic construction. (Primarily research and DSRV submarine batteries).	PB2
Small (29 lbs. or less) silver zinc batteries and battery cell sections encased in a plastic container	PB4
Silver zinc batteries encased in epoxy-type plastic with metal cases and attachments	PB5
Silver-cadmium batteries	PB6
Expended hypo solution, derived from the processing of photographic films and papers	P02
Silver-bearing sludge derived from cleaning out electrolytic silver recovery units ONLY	P03
Photographic films and papers (exposed, unexposed, processed or unprocessed), X-ray, graphic arts, motion picture, phototype setting, aerial, black and white, processed and other types of silver-bearing photographic film and paper.	P04
Ash from photographic films and papers generated from the incineration of (exposed, unexposed, processed or unprocessed), X-ray, graphic arts, motion picture, phototype setting, aerial, black and white, processed and other types of silver-bearing photographic film and paper.	P05
Exhausted chemical recovery cartridges used for recovery of silver from hypo solution by metallic displacement. Includes sludge recovered from cartridges.	P06
Cyanide-based liquids, sludge, powder or salts, derived from plating and/or deplating operations. May contain gold, silver, or platinum family metals.	P07
Acid-based liquids, sludge, powders or salts derived from plating and/or deplating operations. May contain gold, silver, or platinum family metals.	P08
Silver-bearing batteries not otherwise classifiable	P12

ATTACHMENT 4.—DEFENSE PROPERTY DISPOSAL SERVICE SCRAP CLASSIFICATION LIST— Continued

Scrap Commodity and Definition	SCL Code
High temperature alloys containing precious metals (gold, silver, and/or platinum family metals) such as stator vanes/ aircraft engine exhaust cones and aircraft panels; EXCLUDES spark plugs, thermocouples and breakers.	P13
Segregated, but not sorted, electrical and electronic scrap containing precious metals (gold, silver, platinum family, or a combination of metals). Scrap being received or items being expended that were not segregated/classified *at time of* receipt *or downgrade will continue to be* processed *under* SCL H24.	P24
Platinum family (platinum, rhodium, palladium, ruthenium, iridium, and osmium)-bearing and -plated, such as platinum-plated electronic scrap, contact points/breakera, insignia, coding boards, etc. EXCLUDES spark plugs, thermocouples, and entire magnetos.	P8A
Silver-bearing, washed and/or plated material such as tableware, holloware, insignia, fixtures, buttons, and clean silver-plated electronic scrap.	P8B
Gold-bearing and plated, including badges, insignia, lapel pins, miscellaneous hardware, used anodes and turnings, and clean gold-plated electronic scrap.	P8C
Silver-bearing dental amalgam; EXCLUDES unused silver pellets used to make amalgam	P8D
Sorted electrical/electronic scrap containing gold, silver, platinum family metals which is predominantly copper based and may contain insignificant amounts of other non-removable metals, e.g., iron, aluminum, etc. Includes, but not limited to, circuit boards/cards (without metal frames/backs although a small amount of metal is acceptable), plastic housed connectors, silver/silver coated wire and circuit breakers.	P8E
Sorted electrical/electronic scrap containing gold, silver, platinum family metals which is: a. Other than copper based, or b. Copper based containing other non-removable metals. Includes, but not limited to electronic modules/housings, aluminum or iron base waveguides, cannon plugs, circuit boards/cards with non-removable metal frames/backs and pin-wire boards.	P8F
Platinum-bearing spark plugs (usually from aircraft)	P81
Platinum-bearing thermocouples	P83
Desalter kits	P84
Gold-plated or washed buttons	P85
Gold-filled eyeglass frames	P86
Gold-bearing materials such as powder, salta, foil, leaf and pellets; dental castings, brazing alloys, dental lingual bars, *or alloy gold-wire,* and all other gold bearing materials with 90% purity or better.	VGM
Platinum family-bearing material such as dental alloys, scraps, sweepings, jewelry, laboratory ware, wire, and all other platinum family bearing materials with 90% purity or better.	VPM
Metallic silver flake derived from electrolytic processing of hypo solution. Includes WOOG cells (small electrolytic units used with dental processors for reclamation of silver).	VSF
Silver-bearing material consisting of used anodes, drillings from anodes and grain silver, wire for welding or brazing, and all other silver with 75% or better purity. Includes UNUSED silver pellets for dental amalgam.	VSM
Precious metals-bearing sweepings collected by vacuum cleaners	VCS*

• Unit of measure in grams. These codes are to be used to identify property received as precious metals (gold, silver, platinum) regardless of the purity of the metal content; e.g., brazing alloys-37 percent, silver flake-90 percent, etc. All transactions, receipts, adjustments, issues should contain the unit of measure as grams.