DEFENSE LOGISTICS AGENCY
HEADQUARTERS
CAMERON STATION
ALEXANDRIA, VIRGINIA 22304-6100

DLA-SM

CHANGE NO. 1
DoD 4160.21-H

12 Dec 86

DEFENSE SCRAP YARD HANDBOOK

I. DoD 4160.21-H, 5 Jul 85, is changed as follows:

A. All references to "Defense Property Disposal Service (DPDS)", "Defense Property Disposal Region (DPDR)"', and "Defense Property Disposal Office (DPDO)", throughout this manual, are now referred to as "Defense Reutilization and Marketing Service (DRMS)", "Defense Reutilization and Marketing Region (DRMR)", and "Defense Reutilization and Marketing Office (DRMO)".

B. All references to "DoD Scrap Recycling Program" throughout this manual are now referred to as "DoD Recyclable Materials Sales Program".

C. Page I-1, paragraph D2g, line 5: Add "and then the servicing accounting finance office station number" after "Activities".

D. Page IV-6:

1. Under "RED" block: Add page number "IV-7".
2. Under "PINK" block: Add page number "IV-8".
3. Under "YELLOW" block: Add page number "IV-9".
4. Under "SILVER GRAY" block: Add page number "IV-10"'.

E. Page IV-13: Add "14" after "SHORT SPARKS CONTINUED ON PAGE IV-".

F. Page V-A-15:

1. Paragraph (2), line 1: Add "," after "clean'".
2. Paragraph (3), line 3: Delete "'3%'" and substitute "2%".
3. Paragraph (4), line 1: Add "," after "sorted". Delete "s" in "papers"'.
4. Paragraph (5), line 1: Add "," after "sorted".
5. Paragraph (6), line 1: Add "," after "liner".

G. Page V-A-16:

1. Paragraph (14), line 2: Add "impact or non-impact (e.g., laser)" after "'and/or".
2. Footnote, line 2: Delete "'83" and substitute "86".

H. Remove pages listed below and insert revised pages. Changes are indicated in italics.

Remove Old	Insert New
Cover	Cover
Foreword	Foreword
IV-7 thru IV-12	IV-7 thru IV-12
IV-15 and IV-16	IV-15 thru IV-16.1
V-1 and V-2	V-1 and V-2
V-5 thru V-8	V-5 thru V-8
V-A-17 thru V-A-21	V-A-17 thru V-A-21

II. This change sheet will be filed in front of the publication for reference purposes, after changes have been made.

BY ORDER OF THE DIRECTOR

JAMES J. SINGSANK
Colonel, USA
Staff Director, Administration

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DoD 4160.21-H
JULY 1985

DEFENSE SCRAP YARD HANDBOOK

DEPARTMENT OF DEFENSE
OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
(ACQUISITION & LOGISTICS)

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-8000

ACQUISITION AND LOGISTICS

DoD 4160.21-H

5 Jul 85 **

FOREWORD

This handbook is issued under the authority of DoD Directive 4160.21, "DoD Personal Property Utilization and Disposal Program,'1 5 December 1980. Its purpose is to outline practical, cost-effective methods for the recovery and recycling of scrap by providing technical guidance on scrap identification and segregation, scrap yard operations and merchandising of scrap.

DSAH 4160.1, TM 755-200, NAVSUP PUB 5523, AFM 68-3, MCO P4010.2A, "Defense Scrap Yard Handbook," June 1966, is hereby cancelled.

The provisions of the handbook apply to the Office of the Secretary of Defense (OSD), the Military Departments, the Organization of the Joint Chiefs of Staff, the Unified and Specified Commands, the Defense Agencies, and activities administratively supported by OSD (hereafter called "DoD Components't).

The handbook is effective immediately and is mandatory for use by all DoD Components. Heads of DoD Components may issue supplementary instructions only when necessary to provide for unique requirements within their respective components.

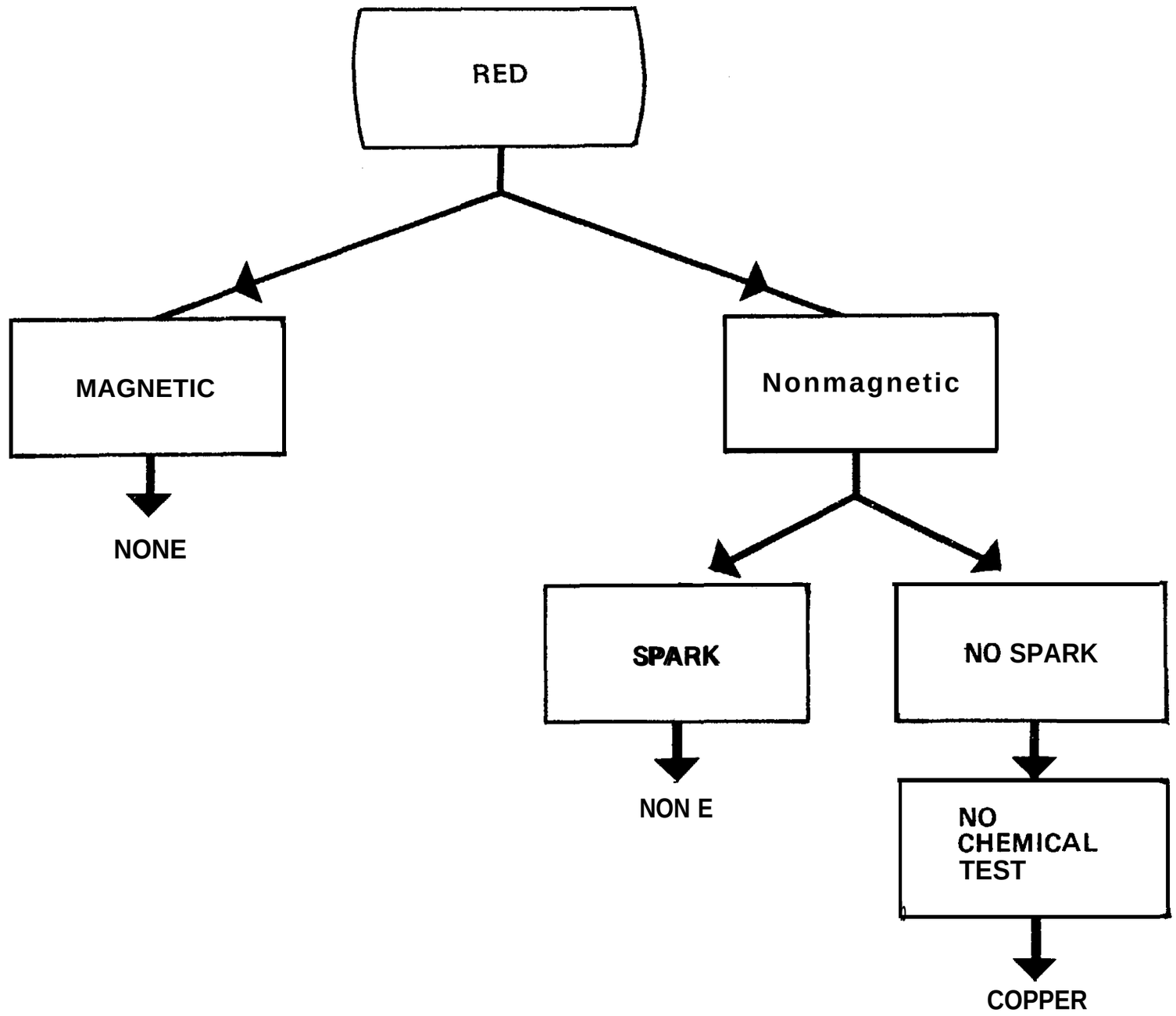
Send recommended changes to this handbook through DoD Component channels to:

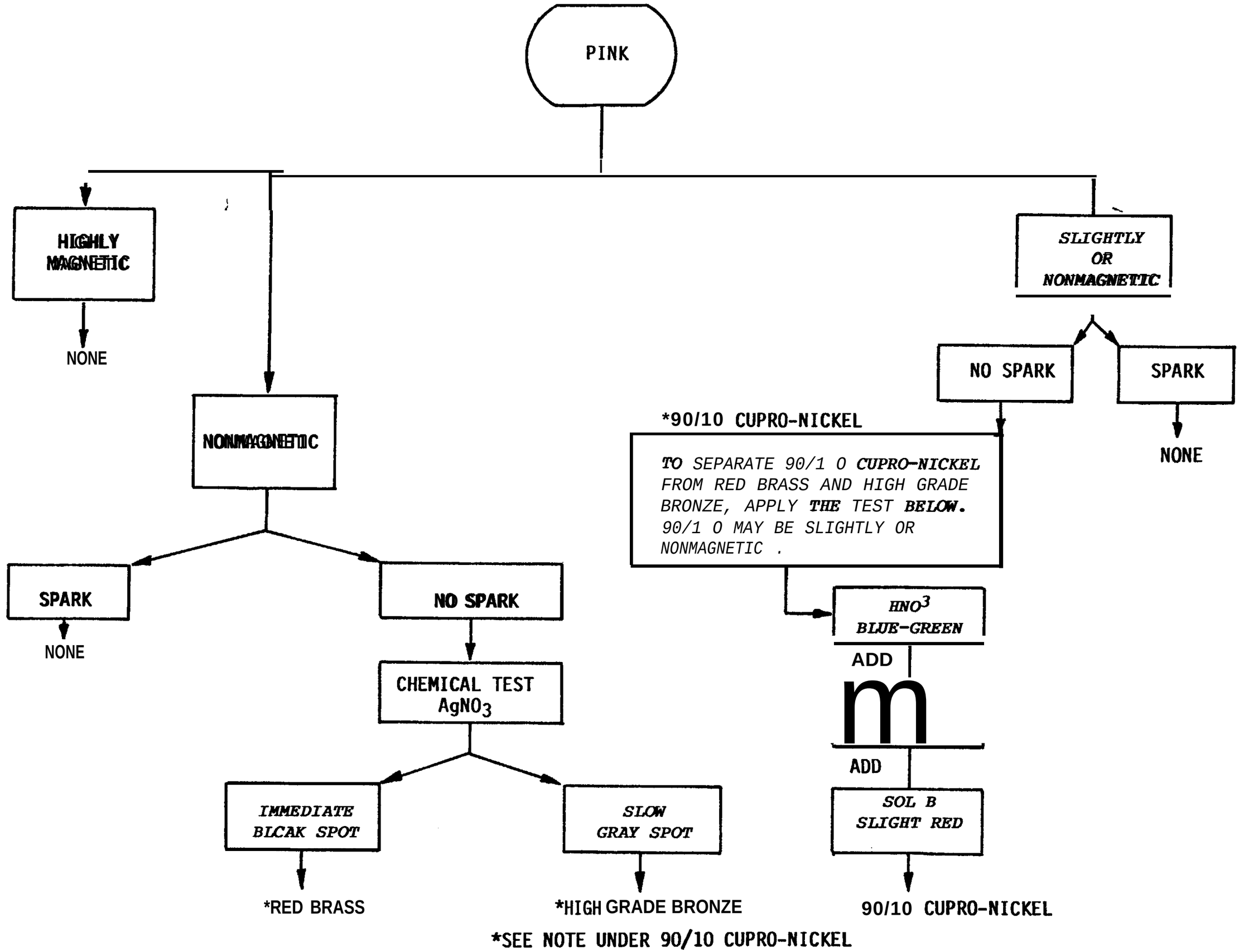
Director
Defense Logistics Agency
ATTN : DLA-SMP
Cameron Station
Alexandria, Virginia 22304-6100

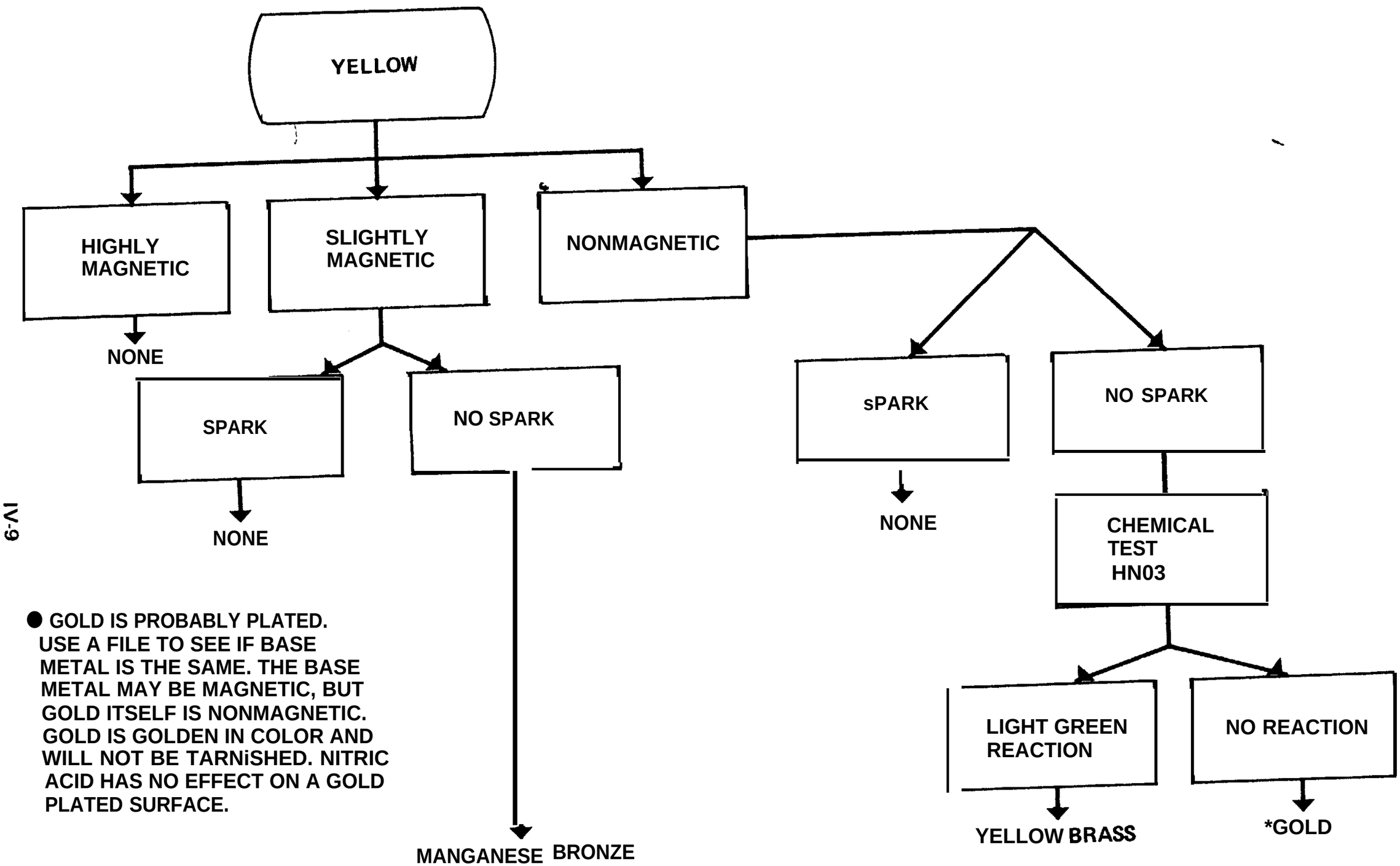
DoD Components may obtain copies of this handbook through their publication channels. Other federal agencies may obtain copies from HQ Defense Logistics Agency, ATTN: DLA-XPD, Cameron Station, Alexandria, Virginia 22304-6100.

James P. Wade, Jr.
Assistant Secretary of Defense
(Acquisition and Logistics)

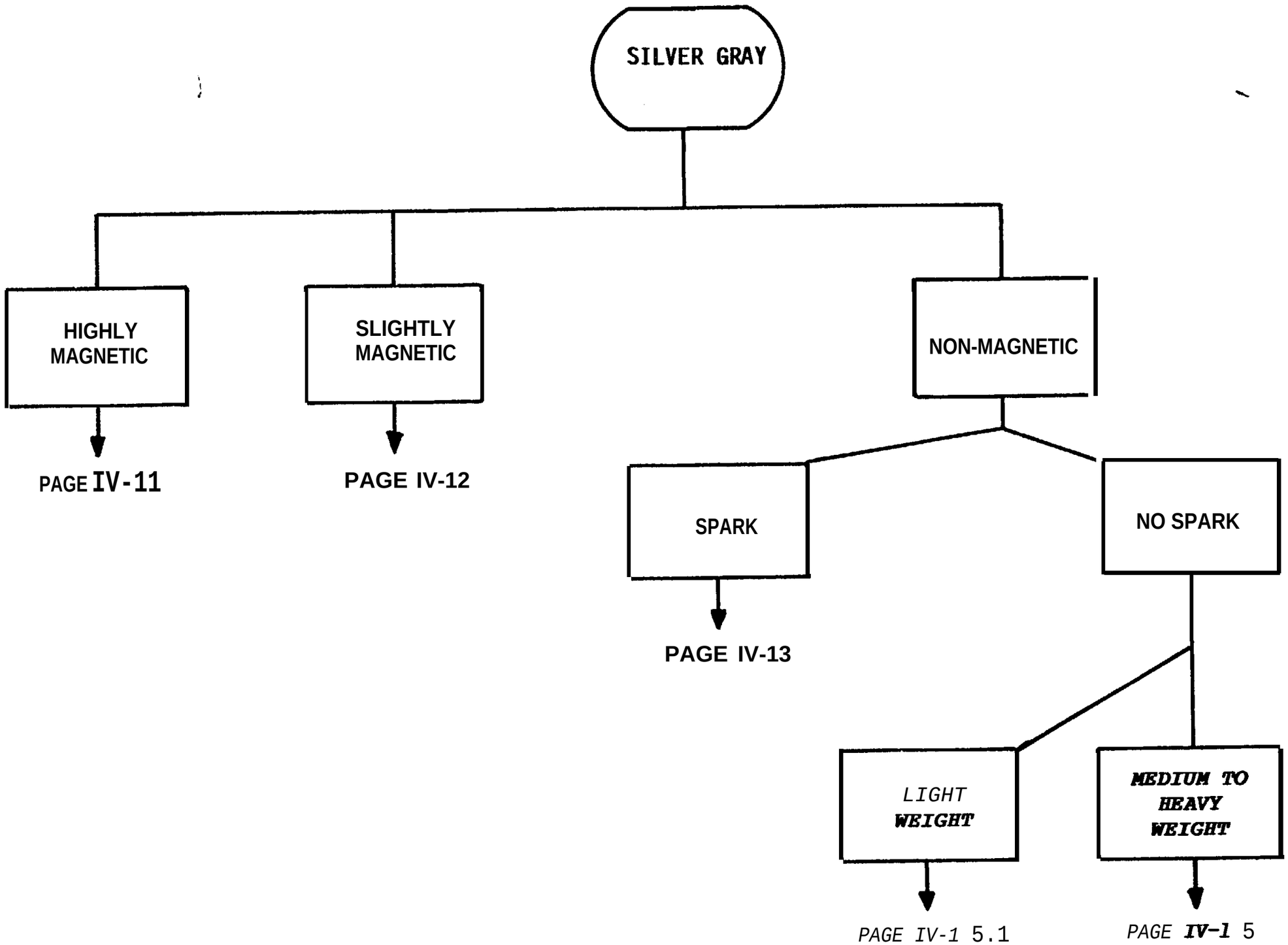
**Page replaced by Change 1.

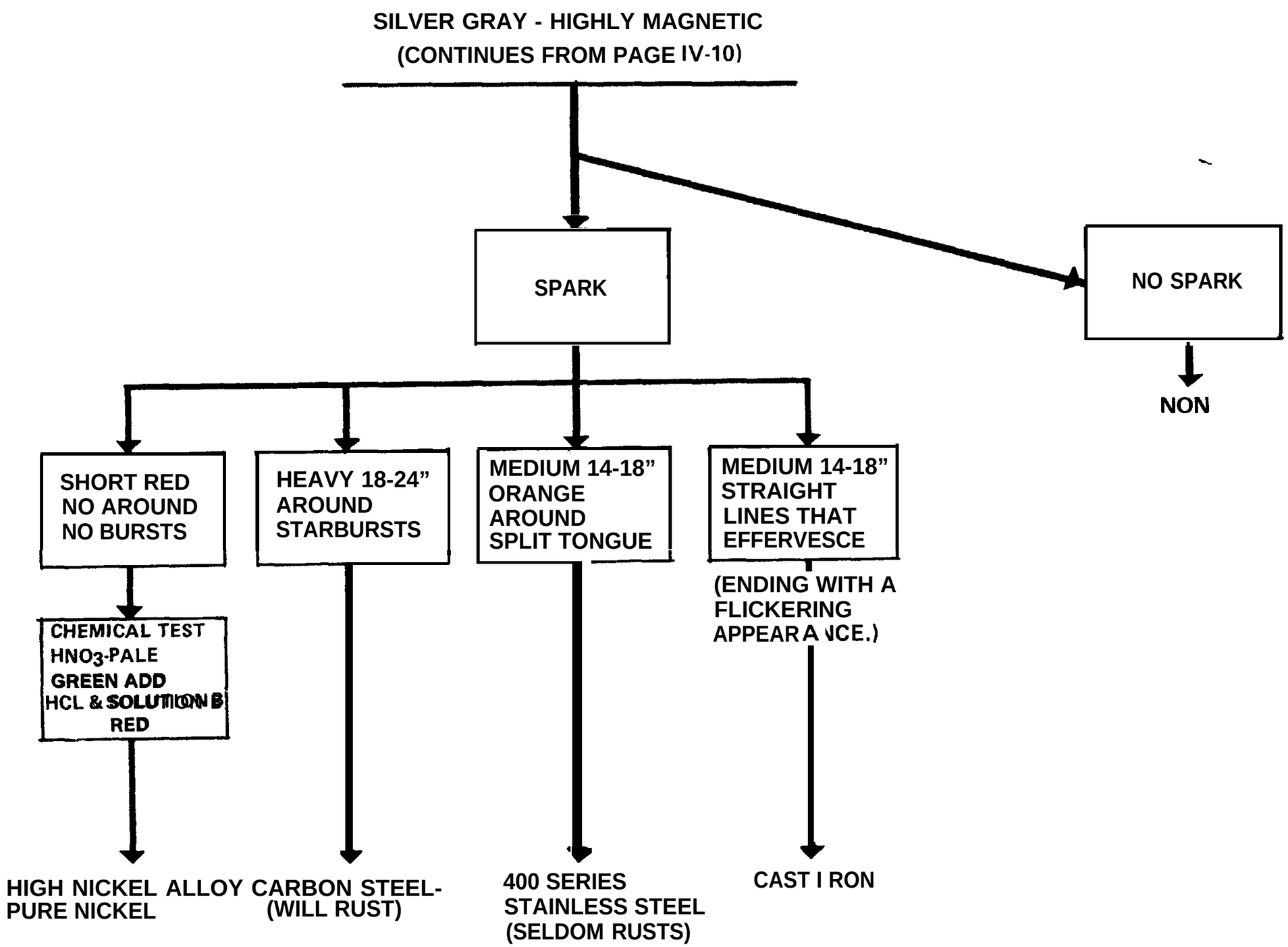

RED
MAGNETIC
Nonmagnetic
NONE
SPARK
NON E
NO SPARK
NO
CHEMICAL
TEST
COPPER

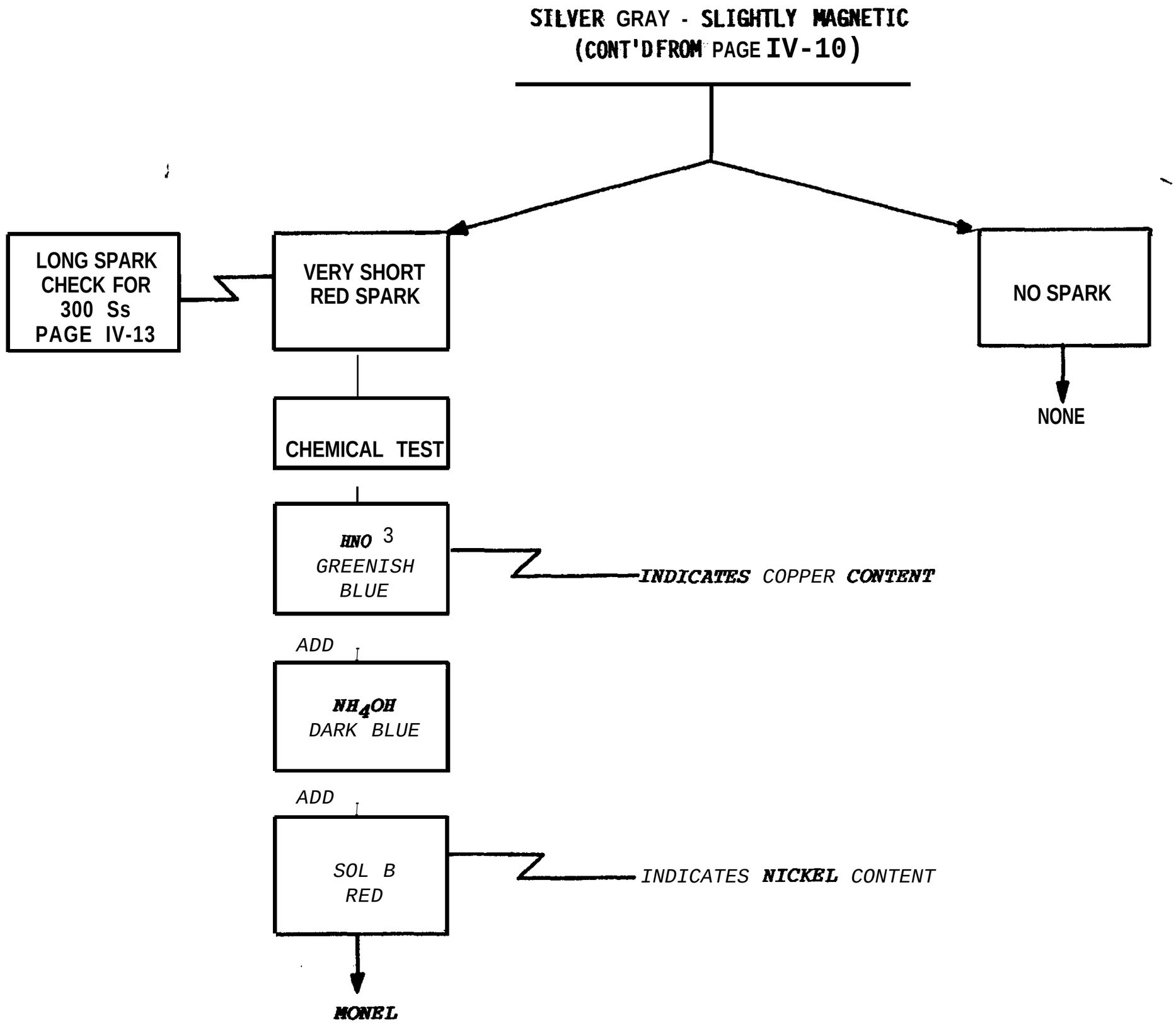

PINK
HIGHLY MAGNETIC
NONE
NONMAGNETIC
SPARK
NONE
NO SPARK
CHEMICAL TEST AgNO3
IMMEDIATE BLCAK SPOT
*RED BRASS
SLOW GRAY SPOT
*HIGH GRADE BRONZE
SLIGHTLY OR NONMAGNETIC
NO SPARK
SPARK
NONE
*90/10 CUPRO-NICKEL
TO SEPARATE 90/1 0 CUPRO-NICKEL FROM RED BRASS AND HIGH GRADE BRONZE, APPLY THE TEST BELOW. 90/1 0 MAY BE SLIGHTLY OR NONMAGNETIC .
HNO3 BLUE-GREEN
ADD
m
ADD
SOL B SLIGHT RED
90/10 CUPRO-NICKEL
*SEE NOTE UNDER 90/10 CUPRO-NICKEL



● GOLD IS PROBABLY PLATED. USE A FILE TO SEE IF BASE METAL IS THE SAME. THE BASE METAL MAY BE MAGNETIC, BUT GOLD ITSELF IS NONMAGNETIC. GOLD IS GOLDEN IN COLOR AND WILL NOT BE TARNiSHED. NITRIC ACID HAS NO EFFECT ON A GOLD PLATED SURFACE.

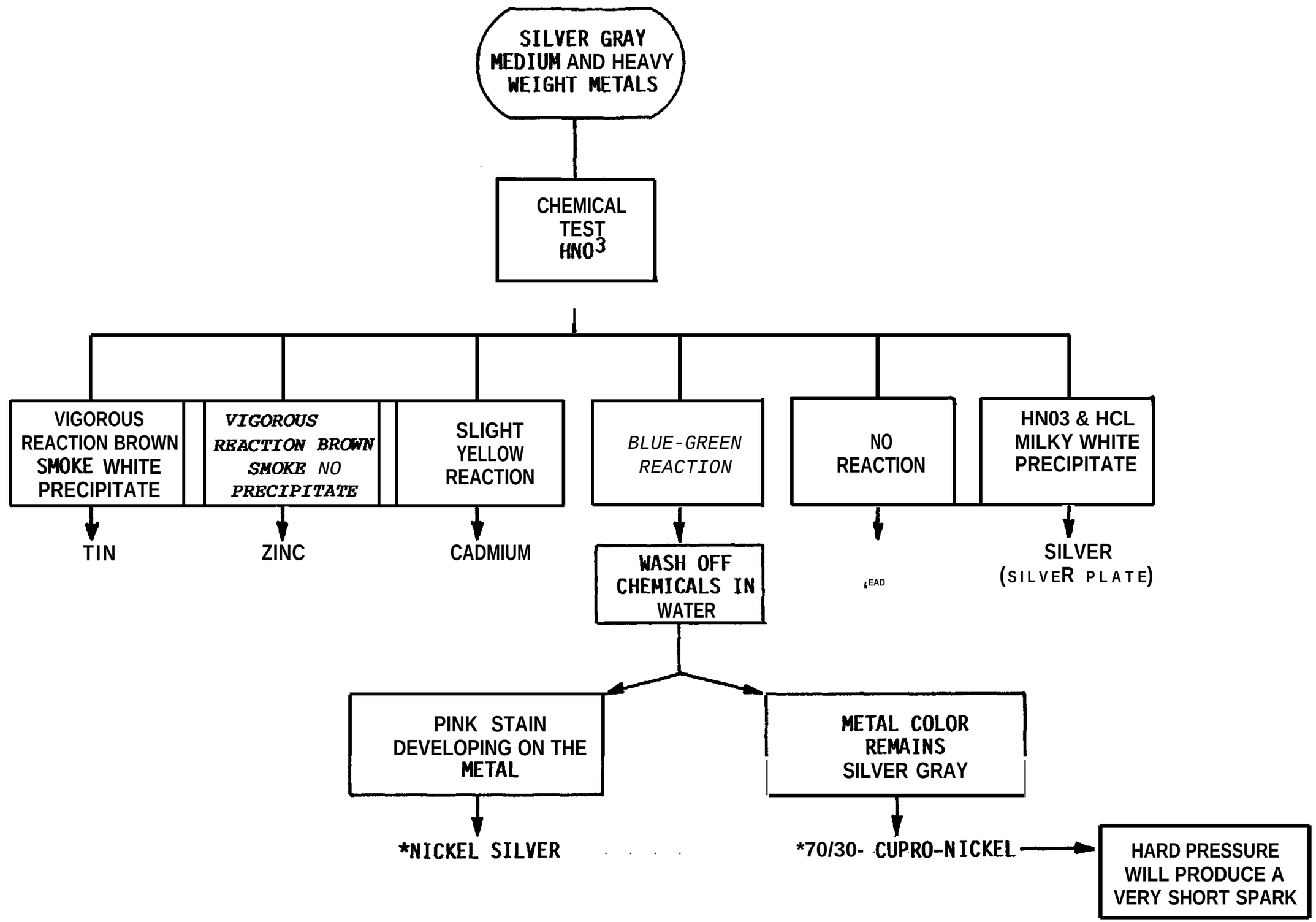

SILVER GRAY
HIGHLY MAGNETIC
SLIGHTLY MAGNETIC
NON-MAGNETIC
PAGE IV-11
PAGE IV-12
SPARK
NO SPARK
PAGE IV-13
LIGHT WEIGHT
MEDIUM TO HEAVY WEIGHT
PAGE IV-1 5.1
PAGE IV-1 5


SILVER GRAY - HIGHLY MAGNETIC
(CONTINUES FROM PAGE IV-10)
SPARK
NO SPARK
NON
SHORT RED
NO AROUND
NO BURSTS
HEAVY 18-24"
AROUND
STARBURSTS
MEDIUM 14-18"
ORANGE
AROUND
SPLIT TONGUE
MEDIUM 14-18"
STRAIGHT
LINES THAT
EFFERVESCE
(ENDING WITH A
FLICKERING
APPEARANCE.)
CHEMICAL TEST
HNO3-PALE
GREEN ADD
HCL & SOLUTION B
RED
HIGH NICKEL ALLOY
PURE NICKEL
CARBON STEEL-
(WILL RUST)
400 SERIES
STAINLESS STEEL
(SELDOM RUSTS)
CAST IRON


SILVER GRAY - SLIGHTLY MAGNETIC
(CONT'D FROM PAGE IV-10)
LONG SPARK CHECK FOR 300 Ss PAGE IV-13
VERY SHORT RED SPARK
NO SPARK
NONE
CHEMICAL TEST
HNO 3
GREENISH BLUE
INDICATES COPPER CONTENT
ADD
NH4OH
DARK BLUE
ADD
SOL B
RED
INDICATES NICKEL CONTENT
MONEL

SILVER GRAY, MEDIUM TO HEAVY WEIGHT

(CONT'D FROM PAGE XV-10)



*CONFIRM NICKEL CONTENT WITH 1 DROP HCL AND 2 DROPS SOL B.
A RED REACTION INDICATES NICKEL CONTENT.

SILVER GRAY - LIGHT WEIGHT

(CONT'D FROM IV-10)

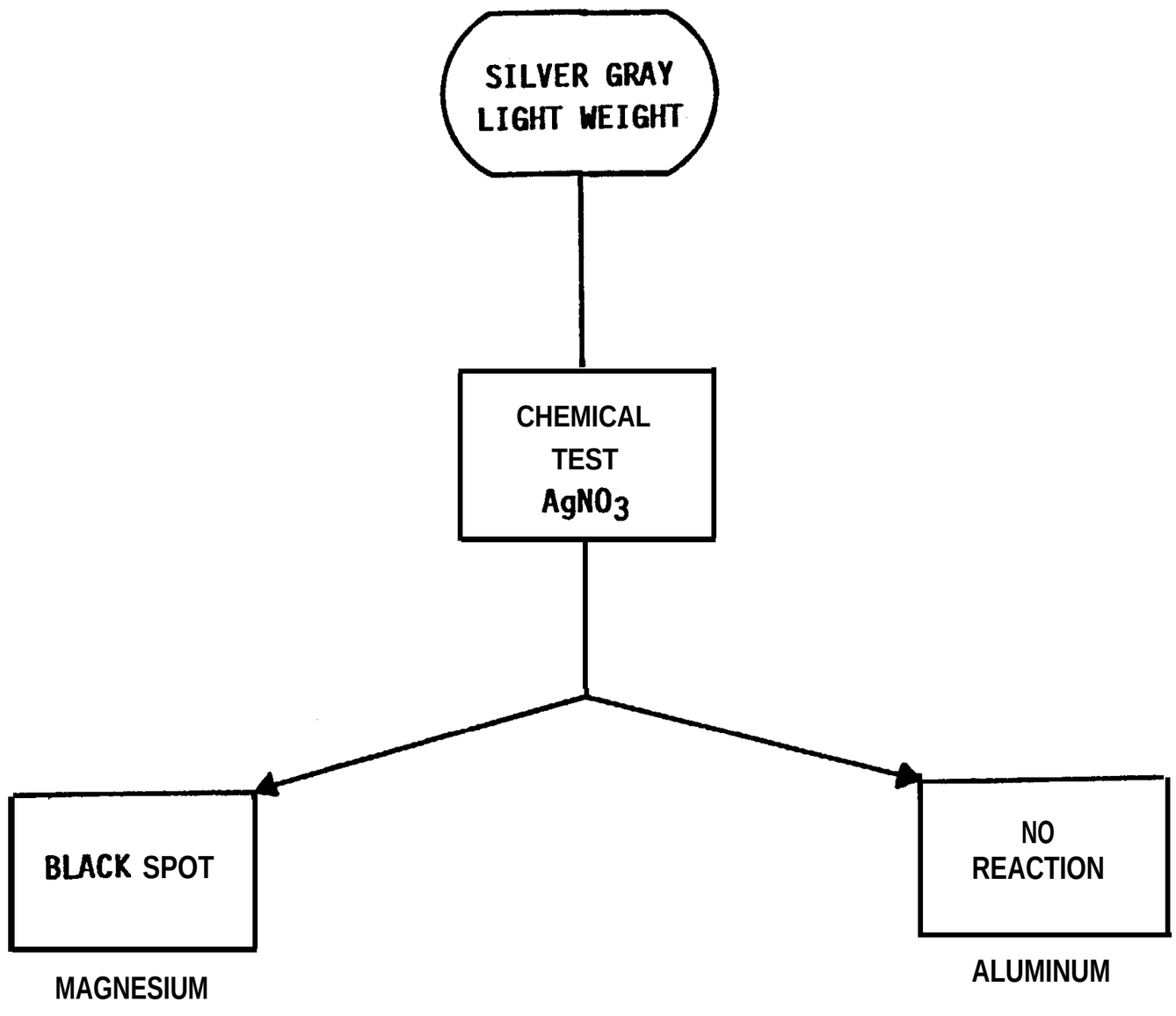
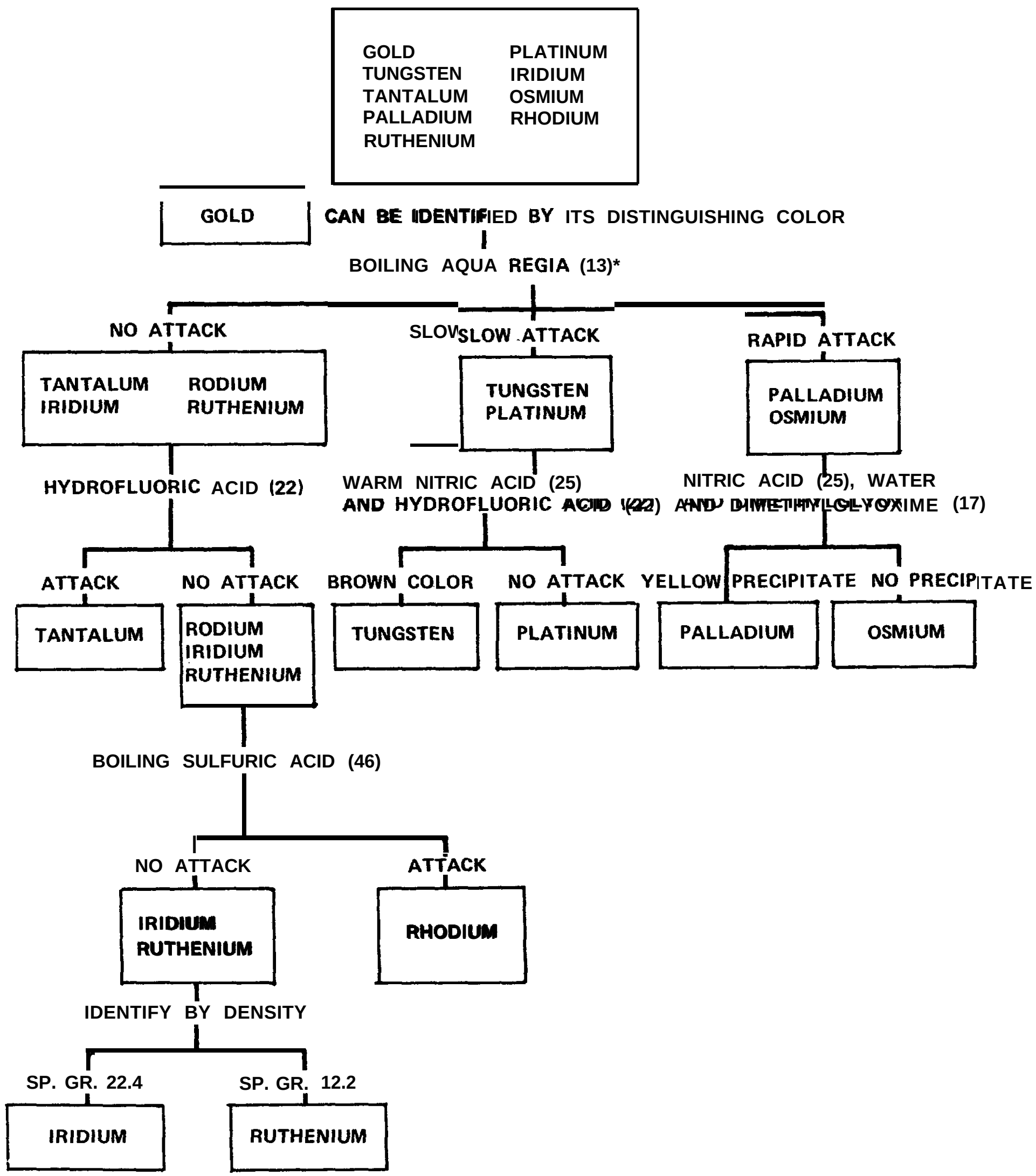


CHART 1
IDENTIFICATION OF VERY HEAVY METALS
(SPECIFIC GRAVITY 12 TO 22)



*THE FIGURE IN PARENTHESES REFERS TO THE REAGENT LISTED IN TABLE IV-2

FIGURE IV-4

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 chapter. 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.

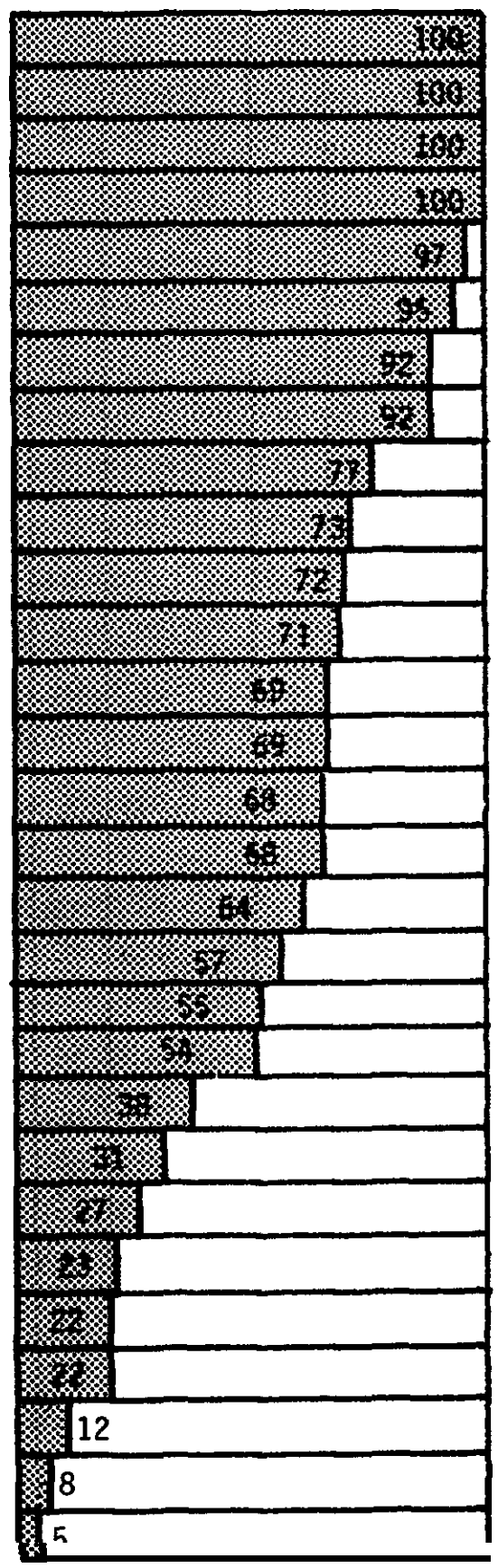
Table V-1

1985 NET IMPORT RELIANCE e/ 1/

OF SELECTED NONFUEL MINERAL MATERIALS

AS A PERCENT OF APPARENT CONSUMPTION 2/

U.S.A.



	MAJOR SOURCES (1981-84)
COLUMBIUM	Brazil, Canada, Thailand
MANGANESE	Republic of South Africa, France, Brazil, Gabon
MICA (sheet)	India, Belgium, France
STRONTIUM	Mexico, Spain
BAUXITE & ALUMINA	Australia, Jamaica, Guinea, Suriname
COBALT	Zaire, Zambia, Canada, Norway
PLATINUM GROUP	Republic of South Africa, UK, U.S.S.R.
TANTALUM	Thailand, Brazil, Malaysia, Australia
POTASH	Canada, Israel
CHROMIUM	Republic of So. Africa, Zimbabwe, Yugo., Turkey
TIN	Thailand, Malaysia, Bolivia, Indonesia
ASBESTOS	Canada, Republic of South Africa
BARITE	China, Morocco, Chile, Peru
ZINC	Canada, Peru, Mexico, Australia
NICKEL	Canada, Australia, Botswana, Norway
TUNGSTEN	Canada, China, Bolivia, Portugal
SILVER	Canada, Mexico, Peru, United Kingdom
MERCURY	Spain, Algeria, Japan, Turkey
CADMIUM	Canada, Australia, Peru, Mexico
SELENIUM	Canada, United Kingdom, Japan, Bel.-Lux.
GYPSUM	Canada, Mexico, Spain
GOLD	Canada, Uruguay, Switzerland
COPPER	Chile, Canada, Peru, Mexico
SILICON	Brazil, Canada, Norway, Venezuela
IRON ORE	Canada, Venezuela, Liberia, Brazil
IRON & STEEL	European Economic Community, Japan, Canada
ALUMINUM	Canada, Japan, Ghana, Venezuela
NITROGEN	U.S.S.R., Canada, Trinidad & Tobago, Mexico
SULFUR	Canada, Mexico

e/ Estimated.

1/ Net import reliance = imports - exports + adjustments for Government and industry stock changes.

2/ Apparent consumption = U.S. primary + secondary production + net import reliance.
Source: Bureau-of Mines (U.S. Department of the Interior)

TABLE V-2. Nominal Chemical Analysis of Stainless Steels

SCL Code	Stainless Steel Designation	Nickel	Chromium	Moly (Max.)	Manganese (Max.)	Carbon (Max.)	Silicon (Max.)	Other Elements
S01	301 LW	6.00	17.00					Cu 2.00
S01	301	6.00/8.00	16.00/18.00		2.00	0.15	1.00	
S01	302	8.00/10.00	17.00/ 19,00		2,00	0.15	1.00	
S01	303	8.00/10.00	17.00/ 19.00	0.60	2.00	0.15	1.00	Zr .60 max., 0.15 S
S01	303 se	8.00/10.00	17.00/ 19.00		2.00	0.15	1.00	Se .15 min.
S01	304	8.00/ 12.00	18.00 /20.00		2.00	0.08	1.00	
S01	304 L	8.00/12.00	18.00/20.00		2.00	0.03	1.00	
S01	305	10.00 /13.00	17.00/ 19,00		2.00	0.12	1.00	
S01	309	12.00115.00	22.00124 .00		2.00	0.20	1.00	
S01	310	19.00/22.00	24.00/26.00		2,00	0.25	1.50	
S01	312	8.00/ 11.00	27.00 /30.00		2.00	0.25	1.00	
T14	314	19.00122.00	23.00126,00		2,00	0.25	1.50/3 .00	
S01	316	10.00/ 14.00	16.00/ 18,00	2.00/3 .00	2.00	0.08	1.00	
S01	317	11.00/15.00	18.00/20.00	3,00/4 .00	2.00	0.08	1.00	
S01	321	9.00/ 12.00	17.00/19 .00		2.00	0.08	1.00	Ti 5 x C min.
S01	322	6.25/7 .75	16.25/ 17.25		.70	.05/.08	.70	Ti .70/1 .0, Al .20/.30
S01	323 (17-7 PH).	6.50/7 .75	16.00/18.00		1.00	0.09	1.00	Al .75/1 .50
S12	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
T14	325	19.00/23.00	7.00/10 .00		2.00	0.50	1.60	Cu 1.00/1.50
S12	327	3.00/5 .00	25.00 /30.00			0.25		
S12	329	2.50/5.00	23.00/28.00	1.00/1 .50	2.00	0.20	1.00	
T33	330	33.00/36.00	14.00 /16.00		2.00	0.25	Loo	
S01	347	9.00/13 .00	17.00/19.00		2.00	0.08	1.00	Cb-Ta 10xC min.
S12	201	3.50/5.50	16.00/18.00		5.50/7.50	0.15	1.00	N 0.25 max.
S12	202	4,00/6.00	17.00 /19.00		7.50/10.00"	0.15	1.00	N 0.25 max.
S12	211	5.25/5.00	10.00/16 .25		6.00/6.25	0.07	.30/.60	Cu 1.50 to 2.00
S02	403		11.50/13 .00		1.00	0.15	0.50	
S02	405		11.50/14 .50		1.00	0.08	1.00	Al .1 0I.30
S02	410		11.50 /13.50		1.00	0.15	1.00	
S02	414	1.25/2.50	11.50/ 13.50		1.00	0.15	1.00	
S02	416		12,00 /14.00	.60	1.25	0.15	1.00	Zr 0.60 max.
S02	420		12.00/14.00		1,00	Over 0.15	1.00	
S02	430		14.00/18.00		1.00	0.12	1.00	
S02	431	1.25/2 .50	15.00 /17.00		1.00	0.20	1.00	
S02	432		16,00			0.10		Cu Loo
S02	433	.50	16.00	1.00		0.10		Cu 1.00
S02	434		16.00	.75/1 .25		0.10		Cu 1.00

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

SCL Code	Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
S21	14-14-2	14.00	14.00		3.50	2.40		.45			
S21	17-14 CU-MO	14.10	15.90		2.50		3.00	.12	.25		.45 CB
S17	19-9 DL	9.00	19.25		1.25	1.25		.30	.30		.40 CB
S17	19-9 WHO	9.00	19.00		.40	1.25		.10	.35		.40 CB
S17	19-9 DX	9.00	19.25		1.50	1.25		.30	.60		1.30 CB
S17	19-9 WR	8.50	20.50		.50	1.55		.11	.20		
T26	A.E.M. 47-50	47.50									52 Fe
T01	Alnico 11	17.00		13.00			6.00	.10		10.00	54 Fe
T01	Alnico V	14.00		24.00			3.00			8.00	51 Fe
S12	AM-350	4.50	16.65		2.85			.09			
S12	AM-355	4.00	15.50		2.85			.13			
T05	A-286	25.50	15.00		1.30				2.10	.35	.30 v
T18	Astroloy	57.00	15.00	15.00	5.00				3.50	4.30	.20 Fe
S21	Carpenter 10	18.00	16.00					.08			
T06	Carpenter 20	27.00	20.00		2.50		3.5				45 Fe
T26	Carpenter 42	41.50							.10		.50 Mn, .25 Si, Bal Fe
T26	Carpenter 49	48.50									51 Fe
T26	Carpenter 52	51.00									.50 Mn, .25 Si, Bal Fe
T10	Constantin	43.00					55.00				1.34 Mn
T10	Copel	45.00					55.00				
T23	Discaloy	26.00	13.50		3.00				1.80	.35	
S3D	Duranickel	94.00						.15	.50	4.50	.15 Fe
T04	D-979	45.00	14.00		4.00				4.00	1.00	4.0 w
T09	Elgiloy	15.00	20.00	40.00	7.00			.15			17 Fe
T26	Elinvar Extra	42.00	5.00						2.50	.50	
T05	G-18-B	13.00	13.00	10.00	2.00	2.50		.40			3.00 CB+Ta
T07	Gannaloy	25.00	5.00					.03	2.25	.50	
S17	Gr. Ascoloy	2.00	13.00			3.00		.15			
T27	GMR-235	63.00	15.50		5.25			.10	2.00	3.00	
T15	HS-1		30.00	55.00		12.00		2.50			
T15	HS-3		31.00	50.00		12.50		2.40			3.00 Fe
T15	HS-4	3.00	30.00	50.00	1.50	14.00		1.00			3.00 Fe
T15	HS-6	3.00	29.00	60.00	1.50	4.50		1.10			3.00 Fe
T15	HS-12	3.00	30.00	56.00		8.50		1.40			3.00 Fe
T15	HS-19	3.00	31.00	52.00		10.50		1.70			3.00 Fe
T15	HS-21	2.50	27.00	60.00	5.50			.25			3.00 Fe
T03	HS-23	1.50	25.00	65.00		5.00		.40			2.00 Fe
T03	HS-25 (L-605)	10.00	20.00	52.00		15.00		.15			2.00 Fe
T25	HS-27	33.00	25.00	33.00	6.00			.40			2.00 Fe
T15	HS-30	15.00	26.00	50.00	6.00			.45			2.00 Fe
T15	HS-31	10.50	25.50	53.00		7.50		.50			2.00 Fe
T05	HS-56	13.00	21.00	12.00	4.50	1.50		.30			46.00 Fe
T01	HS-93	.50	17.00	6.00	16.00						53.00 Fe, 2V
T15	HS-98M-2	3.5C	30.00	40.00	.80	18.50		2.00			2.50 Fe, 4V
T26	Hastelloy A	59.00			20.00			.10			
T26	Hastelloy B	64.00			28.00			.10			
T04	Hastelloy C	55.00	16.00		17.00	5.00		.15		1.00	
T01	Hastelloy D	85.00					4.00	.10			10.00 Si
7?34	Hastelloy N	71.0(	7.00		16.50	1	1	1 .06		.50	5.00 Fe
T32	Hastelloy R	65.0(	15.50	1.50	5.00	1	1	1 .10	2.50	2.25	

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

SCL Code	Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
T32	Hastelloy R-235	67,00	15.50	2.50	5.00			.10	2.50	3.00	
T32	Hastelloy W	60.00	5.00	2.50	25.00			.12			60 V
T32	Hastelloy	45.00	22.00	1.50	9.00	.60		.10			
T26	Hipernik	50.00									50 Fe
S3D	Hy-Mu-80	80.00			4.00						16 Fe
T04	Ilium G	57.00	22.50		6.40	6.50					3.50 Fe
T27	Ilium R	64.00	22.00		5.00	2.60					3.00 Fe
T30	In-100	60,00	10.00	15.00	3.00				5.00	5.50	1.00 v
T08	Inconel (600)	76.00	15.80				.10	.04			7.20 Fe
T08	Inconel W (722)	75.00	15.00				.10	.55	2.40	.60	3.50 Fe
T08	Inconel X (X-750)	73.00	15.00				.05	.04	2.50	.80	3.75 Fe, .85 CB
T08	Inco X-550 (751)	72.50	15.00				.05	.04	2.50	1.20	3.75 Fe, 1.00 CB
T18	Inco 700	46.00	15.00	28.50	3.75		.05	.12	2.20	3.00	70 Fe
T08	Inco 713	74,00	11.50		4,50			.12	.50	6.00	LOO Fe, 2.00 CB
T04	Inco 718	52,50	18.00		3.00		.10	.04	.80	.60	18 Fe, 5.20 CB
T01	Inco 901	42.50	12.50	1.00	6.00		.10	.05	2.70	.35	34 Fe
T06	Incoloy (800)	32.00	20.50								46 Fe
T26	bar	36.00									54 Fe
T20	Jetalloy 1570	29.00	20.00	37.50		7.00		.20	4.20		
T18	K-42-B	43.00	18.00	22.00					2.50	.20	
T01	Kinsalloy	70.00			22.00					8.00	
T01	Kovar	29.00		17.00							
T18	M-252	53.50	19.00	10.00	9.50			.15	2.50	1.00	
T23	M-308	32.50	13.75		4.20	6.50		.08		.45	,15-2.35 Zr
T10	R Monel (#400)	66.00					31.50	.12			1.35 Fe
T10	Monel #401	44.50					53.00	.03			1.70 Fe, .50 Co
T10	Monel #410	66.00					30.50	.20			1.00 Fe, 1.60 Si
T10	K Monel (K-500)	65,00					28.50	.15	.50	2.80	1.00 Fe
T10	S Monel (# BOO)	64.00					29.00	.08			2.00 Fe, 4.00 Si
T10	H Monel (#506)	64.00					30.00	.10			1.50 Fe, 3.20 Si
T30	Mu Metal	77.00	1.50				4.50				
T20	N-155 (Mult)	20.00	20.00	20.00	3.00	2.50		.12			30 Fe, 1.00 CB+Ta
S3D	Nickel 200 (A)	99.50					.05	.06			.15 Fe
S3D	Nickel 202	95,50				3.80	.02	.03			.05 Fe
S3D	Nickel 204	95.20		4.50			.02	.03			
S3D	Nickel 210	95.60					.50	.80			.50 Fe, 1.60 Si
S3D	Nickel 211 (D)	95.00					.03	.10			.05 Fe, 4.50 Mn
S3D	Nickel 213 (G)	95.00					.50	1.56			.50 Fe, 1.60 Si
S3D	Nickel 305 (S)	91.50					.50	.80			.50 Fe, 6.00 Si
S3D	Z Nickel	94.00					.05	.15	.50	4.50	.15 Fe
T30	Nicrotung	61.00	12.00	10.00		10.00		.10	4.00	4.00	
T33	Ni-o-nel (825)	41.80	21.50		3.00		1.80	.03	.90	.15	30.00 Fe
T04	Ni-o-nel (826)	51.50	30.00				1.70	.04			
T26	Ni-Span-C	42.00	5.40				.05	.02	2.40	.65	
T01	Nivco	22.50		73.50				.02	1.8C	.22	
T16	Nimonic 75	77.60	20.50				.05	.10	.35	.20	.50 Fe
T16	Nimonic 80A	74.5(	20.5(				.05	.05	2.35	1.25	.55 Fe
T29	Nimonic 90	56.2(	20.3(	17.70			.05	.05	2.6(	1.65	
T29	Nimonic 95	50.0(	20.0(	20.00					3.0(	2.00	
T29	Nimonic 100	50.0(	19.0(	20.00	5.00			.10	3.0(	2.00	
T18	Nimonic 105	46.0(	15.0(	20.00	5.00			.15	1.45	4.50	
T18	Nimonic 115	42.5(	15.0(	15.00	3.50			.2(	4.0(	5.00	
S3B	Niresist # 1	15.5(	2.2(				6.00	3.0(			2.00 Si

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

SCL Cede	Designation	Nickel	Chromium	Cobalt	Moly	Tungsten	Copper	Carbon	Titanium	Aluminum	Other Elements
S3B	Niresist # 2	20.00	3.00					2.60			?.00 Si
S3B	Niresist # 3	30.00	3.00					2.60			1.50 Si
S3B	Niresist # 4	30.50	5.00					2.60			5.50 Si
T26	Nireeist # 5	35.00	3.00					2.40			1.50 Si
S3D	Permanickel	98.60						.25	.50		10 Fe, .35 Mg
T03	Permendur			50.00							50.00 Fe
T30	PDRL	60.00	10.00	15.00	3.00				4.50	5.50	75 v
sol	PH-15-7 Mo	7.00	15.00		2.50			.09		1.15	
T33	RA-330	35.00	19.00				.50	.06			
T32	RA-333	45.00	25.00	3.50	3.50	3.50	.50	.08			
T33	Refractoloy B	30.00	25.00		8.00			.07			
T20	Refractoloy 26	37.00	18.00	20.00	3.00				2.70	.50	
T20	Refractoloy 70	20.00	20.00	30.00	8.00	4.00		.05			
T20	Refractoloy 80	20.00	20.00	30.00	10.00	5.00		.10			
T01	Remalloy 17			12.00	17.00						.30 Mn, 71 Fe
T01	Remalloy 20			12.00	20.00						.30 Mn, 67.70 Fe
T18	Rene 41	52.00	19.00	11.00	10.00						
T01	Rodar	29.00		17.00							.30 Mn, Bal. Fe
T30	SM 200	60.00	9.00	10.00		12.50			2.00	5.00	
T03	SM 302	1.50	21.50	56.00		10.00		.85			9.00 Ta
T09	S-816	20.00	20.00	44.00	4.00	4.00		.35			5.00 Fe, 4.00 CB+Ta
T15	Star J	2.50	32.00	45.00		17.50		2.50			3.00 Fe
T28	Thetaloy (PWA 651).	46.00	25.00	12.50	3.00	7.00		.38			
T25	Ticonium	30.00	25.00	30.00	6.00			.06			
T06	Timken (16-25-6)	25.00	16.00		6.00						1.35 Mn
S21	Timken (16-15-6)	15.00	16.00		6.00						7.50 Mn
T06	Tinidur	30.00	15.00					.08	1.75	.40	
T26	Udimet A	25.00						.03	1.65	.30	Bal. Fe
T18	Udimet 500	53.00	17.50	16.50	4.00			.10	3.00	3.00	Bal. Fe
T18	Udimet 520	56.00	19.00	12.00	6.00	1.00			3.00	2.00	1.00 Fe
T18	Udimet 600	52.00	17.50	16.50	4.00				2.90	4.20	4.00 Fe
T18	Udimet 700	52.00	17.00	18.00	4.00				3.50	4.20	1.00 Fe
T26	Vicalloy	52.(KI									
T18	Waspaloy	56.00	19.00	14.00	4.00				3.00	1.20	2.00 Fe
T18	Waspaloy (Mod)	56.00	19.00	11.5(	7.00				2.50	1.20	2.00 Fe

[1] Hayne's Stellite alloy.

ATTACHMENT 4.–DEFENSE REUTILIZATION & MARKETING SERVICE SCRAP CLASSIFICATION LIST

Scrap Commodity and Definition	SCL Code
FERROUS	
Heavy breakable cast	EIQ
Iron and steel scrap, mixed with foreign attachments. Highly enameled stock, coated paint cans, tin cans, borings and turnings, highly corroded, dirty and containing excessive oil, and other inferior grades of material prohibitive to other classifications.	EIL
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.	EIM
Mixed cast	EIR
Mixed iron and steel boringa and turnings	EIG
No. 1 heavy melting steel	EIA
No. 2 heavy melting steel	EIB
No. 1 steel bundles	EIE
No. 2 steel bundles	EIF
No. 1 steel busheling	E1C
No. 2 steel busheling	EID
Small arms parts requiring further processing	EIT
Stove plate	E1O
Stripped engine blocks	EIN
Tin can and terne plate	EIH
Tool steel	EIS
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	EIK
Unstrapped engine blocks	EIP
Vehicles and components	
Steel tank track, without rubber pads	EIU
Steel tank track, with rubber pads	EIV
Steel chain, anchors	EIW
vehicles, commercial/automobiles/trucks	E2A
Vehicles, tactical, all types	E2C
Vehicles, armored	E2D
Vehicles, special purpose	E2E
Tank trailers	E2F
NONFERROUS	
Aluminum	
Aluminum dross	DIG
Aluminum foil, aluminum screen	DIB
Sweated aluminum pigs and ingots	DIF
Cast aluminum, engine blocks, transmissions, axle 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 parts, component, or accessories from which all non-aluminum parts have not been removed, and borings and turnings containing excessive oil and other foreign materials. Large quantities of borings and turnings should be segregated.	DID
Aluminum, radiators	DIK
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

ATTACHMENT 4.—DEFENSE REUTILIZATION & MARKETING SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	SCL Code
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.	D1E
Wrecked helicopter	DIH
Brass:	
Brass, without foreign attachments	D4E
Brass, with foreign attachments	D4F
Brass, fired, *to include blanks and all cartridge cases not specifically listed*	D2E
22 caliber expended cartridge cases	D22
30 caliber expended cartridge cases	D30
38 caliber expended cartridge cases	D38
45 caliber expended cartridge cases	D45
50 caliber expended cartridge cases	D50
5.56 mm expended cartridge cases	D5M
7.62 mm expended cartridge cases	D7M
9.00 mm expended cartridge cases	D9M
12 gauge shotgun shells, expended	D31
Gilding metal	D4N
Bronze	
Bronze, without foreign attachments	D4H
Bronze, with foreign attachments	D41
Bullet metal. Metals reclaimed from target rangea. Segregate according to basic metal material content	D03
tipper:	
Armor cable, scrap	D4K
Copper, without foreign attachments. 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 attachments and other materials.	D2A
Copper cable, lead covered. Tinned and untinned copper wire and cable covered with a sheathing of lead, free of steel armor and other metallic coverings.	D4B
Cupro-Nickel, without foreign attachments	D4M
Cupro-Nickel, with *foreign* 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 armor 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, with foreign attachments	D4D
Mixed copper base alloys. Copper base alloys with foreign attachments not economically removable.	D2B
Electrical and electronic residue not containing precious metals	D4R
Germanium	T66
High temperature alloys:*	
High temperature alloys not assignable to an established group	T01
High temperature alloy group 3. 1-10$ZO 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 6.259'0 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	TOO
High temperature alloy group 9. 20% Ni, 20% Cr, 40% b	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

ATTACHMENT 4.—DEFENSE REUTILIZATION& MARKETING SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	8CL Code
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 28.6090 Ni, 25% Cr, 12% Co	T28
High temperature alloy group 29.58940 Ni, 19% Cr, 18% G	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 33.3590 Ni, 15% Cr	T33
High temperature alloy group 55.90910 W	T55
High temperature alloy group 60. 80% Ti	T60
High temperature alloy group 62. Beryllium (Be)	T62
High temperature alloys unsegregated	T24
Lead	
Aircraft batteries (lead-acid type)	D5B
Lead without foreign 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	D06
Mercury and nickel-cadmium batteries, nonprecious metal-bearing	D12
Stainless steel wrap*	S00
Stainless steel alloy group 1. (See SCL codes identifying high temperature and stainless steel alloy segregation groups.) 7-13% Ni, 17-19% Cr.	
Stainless steel alloy group 2. 0-2% Ni, 12-16% Cr	
Stainless steel alloy group 12.4% Ni, 17% Cr	S12
Stainless steel alloy group 17. 2-9% Ni, 12-20% Cr	S17
Stainless steel alloy group 21.1490 Ni, 14% Cr	S21
Stainless steel alloy group 24.1290 Ni, 25% Cr	S24
Stainless steel, magnetic	S3B
Stainless steel, nonmagnetic	S3A
Chrome nickel	S3c
Nickel, miscellaneous	S3D
Tantalum	T65
Zinc scrap	D09
*Beryllium (Be), Chromium (Cr), Cobalt (Co), Copper (Cu), Nickel (Ni), Titanium (Ti), Tungsten (W).	
NONMETALLIC	
Asbestos, nonfriable	H01
Ashes, waste (coal or wood)	H10
Chemical scrap	
Chemical scrap, and related materials, nonprecious metal-bearing	H02
Dehydrating agent, Grade A	H03
Cullet	H05
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 grounda, onion hulls, peach pits, fish heada, 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.	B01
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

ATTACHMENT 4.—DEFENSE REUTILIZATION& MARKETING SERVICE SCRAP CLASSIFICATION LIST-Continued

Scrap Commodity and Definition	8CL Code
Paper	
Books and magazines	A04
Computer paper	A08
Ledger. White ledger stock should be segregated from colored ledger stock.	A02
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.	A05
Newspaper. Offer for sale as "No. 1 News," consisting of clean waste newspaper	A03
Paper map scrap	A07
Plain and corrugated cardboard	A06
Tabulating cards *(includes all colors with/without tinted edges). Manila-colored cards should be segregated and sold separately, including those with tinted edges.*	A01
Petroleum products:	
Fuel oil, jet fuel and similar materials, used	H16
Lubricating oil, used (motor vehicle types and similar)	H15
Oil, lubricants, grease, used	H17
Synthetic base aircraft turbine engine oil, used (MIL-L-7808, 8188, and 23699).	H18
Plastic	H08
Plastic sonobuoy containers	H04
my	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 other type of debris scheduled for A&D and generated from segregation of other scrap.	B00
Textiles:	
Burlap. Includes Osnaburg	C01
canvas	C02
cotton comforters, scrap	CIB
Cotton mattresses, scrap	C1C
Cotton rags	C09
Nylon rage	C07
Polyester, scrap	CIE
Poncho, scrap	C1F
Rage, miscellaneous, not covered in other SCL codes	C03
Rayon rags	C06
Rubberized clothing and equipage scrap	CIG
Silk rags	C10
Sleeping bags, scrap	CIH
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
Wax scrap, and related materials	H19
Wood scrap	F01
PRECIOUS METALS	
Acid-based liquids, sludge, powder, or salts derived from plating and/or deplating operations. May contain gold, silver, or platinum family metals.	P08
Ash from photographic film and paper generated from the incineration of (exposed, unexposed, processed or unprocessed) X-ray, graphic arts, motion picture, phototype setting, aerial, black and white, unprocessed color film, and other types of silver-bearing photographic film and paper.	P05
Cyanide-based liquids, sludge, powder, or salts derived from plating and/or deplating operations. May contain gold, silver, or platinum family metals.	P07
Desalter kits	P84

A'ITACHMENT 4.—DEFENSE REUTILIZATION& MARKETING SERVICE SCRAP CLASSIFICATION LIST—Continued

Scrap Commodity and Definition	SCL Code
Duet and filters from vacuum systems or other systems collecting fine particles; sweepings and residue other than borings, turnings, etc. May contain gold, silver or platinum familymetals.	P87
Exhausted chemical recovery cartridges used for recovery of silver from hypo solution by metallic displacement. Includes sludge recovered from cartridges.	Pø6
Expended hypa solution, derived from the processing of photographic film and paper	Pø2
Gold-bearing and gold-plated, including badges, insignia, lapel pins, miscellaneous hardware, used anodes and turnings, and gold-plated electronic scrap without foreign attachments.	P8C
Gold-filled eyeglass frames	P86
Gold-plated or washed buttons	P85
High temp 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, thermo-couples and breakers.	P13
Photographic film and paper (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.	Pø4
Platinum-bearing thermocouples and magnetos	P83
Platinum-bearing spark plugs (usually from aircraft)	P81
Platinum family (platinum, rhodium, palladium, ruthenium, iridium, and osmium) -bearing and -plated, such as platinum-plated electronic scrap, contact points/breakers, insignia, coding boards. EXCLUDES spark plugs, thermocouples, and entire magnetos.	P8A
Segregated, but not sorted, electrical and electronic scrap containing precious metals (gold, silver, platinum family, or a combination of metals). Scrap not segregated/classified at time of receipt or downgrade will continue to be processed under SCL H24.	P24
Precious metal-bearing electron tubes	P8G
Silver-bearing batteries not otherwise classifiable	P12
Silver-bearing dental amalgam excludes unused silver pellets used to make amalgam	P8D
Silver-bearing, washed and/or plated material such as tableware, holloware, insignia, fixtures, buttons, and clean silver-plated electronic scrap.	P8B
Silver-cadmium batteries	P136
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 sonobuoy batteries.	PB1
Silver zinc batteries which are encased in plastic; battery cell sections; and field telephone batteries in fiberboard cases.	PB4
Silver zinc batteries (complete battery) encased in metal or with metallic attachments	PB5
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
Sorted electrical/electronic scrap containing gold, silver, and platinum family metals which is predominately 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. Capper based containing other non-removable metals. Includes, but not limited to, electronic moduleslhousinge, aluminum or iron based waveguides, cannon plugs, circuit boards/cards with non-removable metal frames/backs and pin-wire boards.	P8F
Gold-bearing material such as powder, salts, foil, leaf, and pellets; dental castings, brazing alloys dental lingual bare, or alloy gold-wire, and all other gold-bearing materials with 90 percent purity or better.	VGM*
Metallic silver flake derived from electrolytic processing of hypo solution; WOOG cells (small electrolytic units used with dental processors for reclamation of silver); and sludge derived from cleaning of electrolytic silver recovery units and/or holding tanks.	VSF*
Platinum family-bearing material such as dental alloys, scraps, sweepings, jewelry, laboratory ware wire, and all other platinum family-bearing materials with 90 percent purity or better.	VPM*
Precious metals-bearing sweepings collected by vacuum cleaners	VCS*
Silver-bearing material consisting of used anodes, drillings from anodes and grain silver, wire for welding or brazing, and all other silver-bearing material with 75 percent or better purity. Include UNUSED silver pellets for dental amalgam.	VSM*

*Unit of measure in grams for all V-coded SCLs.

* U.S. GOVERNMENT PRINTING OFFICE: 1986-181-135:40867