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Stable Isotope Customer List and Summary of Shipments – FY 1986

J. G. Tracy

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ORNL/TM-10324

OPERATIONS DIVISION

STABLE ISOTOPE CUSTOMER LIST AND SUMMARY OF SHIPMENTS — FY 1986

Compiled by

J. G. Tracy

Date Published: February 1987

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Oak Ridge, Tennessee 37831
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STABLE ISOTOPE CUSTOMER LIST AND SUMMARY OF SHIPMENTS — FY 1986

J. G. Tracy

INTRODUCTION

This compilation is published as an aid to those concerned with the separation and sale of stable isotopes. The information is divided into four sections:

1. alphabetical list of domestic and foreign customers, showing the stable isotopes purchased during the fiscal year;

2. alphabetical list of isotopes, cross-referenced to customer numbers and divided into domestic and foreign categories;

3. alphabetical list of states and countries, cross-referenced to customer numbers and indicating geographical concentrations of isotope users; and

4. tabulation of the shipments, quantities, and dollars for domestic, foreign, and project categories for each isotope.

Other reports in this series are:

ORNL/TM-1928	ORNL/TM-3987	ORNL/TM-7764
ORNL/TM-2038	ORNL/TM-5089	ORNL/TM-8302
ORNL/TM-2401	ORNL/TM-5853	ORNL/TM-8704
ORNL/TM-2747	ORNL/TM-6241	ORNL/TM-8979
ORNL/TM-3146	ORNL/TM-6710	ORNL/TM-9430
ORNL/TM-3543	ORNL/TM-7214	ORNL/TM-9866/R1

We wish to thank Jim Delker of the Business Systems Department of the ORGDP Computing Technology Center for his assistance in developing the tabulations.

I. ALPHABETICAL LIST OF CUSTOMERS, WITH CONTACTS AND ISOTOPES PURCHASED

A. DOMESTIC

1 Abilene Christian College
Box 8208
Abilene, Texas 79699

^{100}Mo

2 Anglo-American Clays Corporation
P.O. Box 471
Sandersville, Georgia 31082

^{57}Fe

3 Argonne National Laboratory
Attn: Chief Accountant - 201
9700 South Cass Avenue
Argonne, Illinois 60439
Illinois

^{114}Cd, ^{65}Cu, ^{56}Fe, ^{157}Gd, ^{64}Ni, ^{192}Pt, ^{194}Pt, ^{196}Pt, ^{74}Se, ^{82}Se, ^{120}Sn, ^{122}Sn, ^{124}Sn, SS, TGS, ^{48}Ti, ^{50}Ti, ^{92}Zr, ^{96}Zr

4 Atom Sciences, Incorporated
114 Ridgeway Center
Oak Ridge, Tennessee 37830

^{100}Mo

5 Auburn University
Dept. of Chemical Engineering
230 Ross Hall
Auburn University, Alabama 36849-3501

^{57}Fe, TGS

6 AT&T Bell Laboratories
P. O. Box 800
Short Hills, New Jersey 07078

^{161}Dy

7 Battelle Northwest
Attn: Accounts Payable
P. O. Box 999
Richland, Washington 99352

^{130}Ba, ^{138}Ba, ^{174}Yb

8 Benedict College
Auxiliary Services
Harden and Blanding Streets
Columbia, South Carolina 29294

^{57}Fe

9 Bicron Corporation
12345 Kinsman Road
Newbury, Ohio 44065

^{7}Li

10 Biosources, Limited
4-4 Bud Way
Nashua, New Hampshire 03063

^{152}Gd

11 Boston University
School of Medicine
Accounting Department A-200
80 East Concord Street
Boston, Massachusetts 02118

^{81}Br, ^{37}Cl, ^{58}Fe, ^{85}Rb, ^{87}Rb, ^{77}Se, SS

12 Brookhaven National Laboratory
Upton, Long Island, New York 11973

^{48}Ca, ^{63}Cu, ^{160}Dy, ^{164}Dy, ^{153}Eu, ^{6}Li, ^{7}Li, ^{74}Se, SS, TGS, ^{186}W

13 Brooklyn College
Department of Chemistry
Ingersol Hall, Room 0141N
Bedford Avenue & Avenue H
Brooklyn, New York 11210

^{119}Sn

14 California, University of
Davis, California 95616

^{7}Li, ^{30}Si

15 California, University of
405 Hilgard Avenue
Los Angeles, California 90024

^{87}Rb, ^{84}Sr, SS

16 California, University of
Lawrence Berkeley Laboratory
Berkeley, California 94701

^{100}Mo, SS, TGS, ^{96}Zr

17 California, University of
Lawrence Livermore Laboratory
Box 808
Livermore, California 94550

^{42}Ca, ^{48}Ca, ^{114}Cd, ^{164}Er, ^{168}Er, ^{57}Fe, ^{154}Gd, ^{176}Hf, ^{177}Hf, ^{178}Hf, ^{179}Hf, ^{39}K, ^{25}Mg, ^{142}Nd, ^{195}Pt, ^{198}Pt, ^{101}Ru, ^{152}Sm, ^{87}Sr, SS, TGS, ^{47}Ti

18 Cambridge Isotope Labs, Inc.
20 Commerce Way
Woburn, Massachusetts 01801

^{6}Li, ^{24}Mg, TGS

19 Carnegie-Mellon University
5000 Forbes
Pittsburgh, Pennsylvania 15213

^{63}Cu

20 Case Western Reserve University
Attn: Accounts Payable
2220 Circle Drive
Cleveland, Ohio 44106
Ohio

^{57}Fe

21 Catholic University of America
Purchasing Department
Administration Building - Room 200
Washington, D.C. 20064

^{50}Cr

22 Children's Hospital
Accounts Payable
300 Longwood Avenue
Boston, Massachusetts 02115

^{43}Ca

23 Cintichem, Incorporated
Attn: Accounts Payable
P.O. Box 6950
Richmond, California 94806

^{55}Fe, ^{153}Gd

24 Colorado, University of
4200 E. Ninth Avenue
Denver, Colorado 80220

^{70}Zn

25 Combustion Engineering, Inc.
Box 400
Windsor, Connecticut 06095

^{6}Li, ^{7}Li

26 Connecticut, University of
Physical Sciences Bldg.
Storrs, Connecticut 06268

^{53}Cr

27 Dartmouth College
Purchasing Department
Central Stores Building
Hanover, New Hampshire 03755

^{150}Nd, ^{206}Pb, ^{84}Sr, SS

28 Detroit, University of
4001 West McNichols Road
Detroit, Michigan 48221

^{63}Cu

29 Dow Chemical Company
P. O. Box 191
Midland, Michigan 48640

^{104}Ru

30 Dr. Stuart L. Adelman
44 McAllister Street
San Francisco, California 94102

^{63}Ni

31 Duke University
Durham, North Carolina 27706

^{33}S, SS

32 E. I. Du Pont De Nemours & Company
NEN Products
Accounts Payable
549 Albany Street
Boston, Massachusetts 02118

^{50}Cr, ^{57}Fe, ^{59}Fe, ^{113}In, ^{59}Ni, ^{103}Ru, ^{84}Sr, SS, ^{203}Tl, ^{95}Zr

33 E.I. Dupont De Nemours & Company, Inc.
Experimental Station
Accounts Payable Section-E268
Wilmington, Delaware 19898

^{57}Fe

34 Eagle-Pitcher Industries, Inc.
P.O. Box 798
Qualpaw, Oklahoma 74363

^{7}Li

35 Eastman Kodak Company
Kodak Park Division
Rochester, New York 14650

^{87}Sr

36 Elymat Industries
Englewood Cliffs, New Jersey 07632

SS

37 Esso Research and Engineering Company
P. O. Box 642
Linden, New Jersey 07036

^{54}Fe, ^{57}Fe, ^{61}Ni, ^{33}S, SS

38 EG&G
35 Congress Street
Salem, Massachusetts 01970-0662

^{85}Rb, ^{87}Rb

39 EG&G Idaho, Incorporated
Accounts Payable
P. O. Box 1625
Idaho Falls, Idaho 83415

^{140}Ce, ^{63}Ni, ^{125}Te

40 Frequency Electronics, Incorporated
55 Charges Lindbergh Blvd.
Mitchel Field, New York 11553

SS

41 Gentech Industries, Inc
245 East Main Street, #104
Alhambra, California 910801

^{109}Ag, ^{130}Ba, ^{114}Cd, ^{102}Ru, ^{123}Sb, ^{122}Sn, ^{124}Sn, ^{120}Te

42 Geochemical Services Incorporated
2741 Toledo Street
Suite 211
Torrance, California 90503

^{44}Ca, ^{203}Tl

43 Georgia, University of
Athens, Georgia 30601

^{57}Fe

44 GNI Incorporated
P. O. Box 57638
Webster, Texas 77598

^{159}Dy

45 GTE Products Corporation
75 Sylvan Street
Danvers, Massachusetts 01923

^{199}Hg

46 GTE Products Corporation
Lighting Products Group
100 Endicott Street
Danvers, Massachusetts 01923

^{196}Hg, ^{198}Hg, ^{200}Hg, ^{202}Hg

47 Harvard University
Division of Applied Sciences
Attn: Accounting Office
Pierce Hall, 29 Oxford Street
Cambridge, Massachusetts 02138

^{202}Hg

48 Harvard University
Department Geological Sciences
24 Oxford Street
Cambridge, Massachusetts 02138

^{161}Dy, ^{155}Gd, ^{171}Yb

49 Harvard University
Purchasing Department
Massachusetts Avenue
Cambridge, MA 02138

^{161}Dy, ^{155}Gd, ^{171}Yb

50 Hewlett Packard Company
1501 Page Mill Road
Palo Alto, California 94304

^{87}Rb, SS

51 Hewlett-Packard Company
Accounts Payable
P. O. Box 10222
Palo Alto, California 94303

^{196}Hg, ^{202}Hg

52 Illinois State University
Purchasing Office
Normal, IL 61761

^{61}Ni

53 Indiana University
Bloomington, Indiana 47401

^{42}Ca, ^{50}Cr, ^{142}Nd, ^{144}Nd, TGS

54 Interactive Radiation Incorporated
181 LeGrand Avenue
Northvale, New Jersey 07647

^{7}Li

55 Iowa State University
Purchasing Department
2nd Floor Physical Plant Building
Ames, Iowa 50011

^{70}Zn

56 Iowa, University of
Iowa City, Iowa 52240

^{58}Fe, SS, TGS, ^{70}Zn

57 Isotec, Incorporated
7542 Mcewen Road
Dayton, Ohio 45459-3995

^{33}S, SS

58 Isotope Products Laboratories
404 South Luke Street
Burbank, California 91502

^{132}Ba, ^{041}Ca, ^{54}Fe, ^{123}Te, ^{168}Yb

59 IBM Corporation
P.O. Box 9452
New Haven, Connecticut 06534-0452
Connecticut

^{63}Cu, ^{167}Er, ^{102}Ru, SS, TGS

60 ICN Biomedicals, Incorporated
P. O. Box 19536
Irvine, California 92714
Attn: Accounts Payable

^{44}Ca, ^{63}Cu, ^{24}Mg

61 John Hopkins University
Accounts Payable Department
Charles & 34th Street
Baltimore, Maryland 21218

^{58}Fe

62 Kansas State University
Department of Clothing, Textiles
and Interior Designs
223 Justin Hall
Manhattan, Kansas 66506

^{50}Cr, ^{63}Cu

63 Kansas State University
Department of Pathology
Veterinary Clinical Science Building
Manhattan, Kansas 66506

^{50}Cr, ^{57}Fe, ^{58}Fe, SS

64 Kent State University
Attn: Dr. Richard Madey
Department of Physics
Kent, Ohio 44242

^{88}Sr, TGS

65 Lamont-Doherty Geological Observatory
Accounts Payable
Palisades, New York 10964

^{114}Cd, ^{66}Zn

66 Lockheed Engineering and Management
Services Company, Inc.
1050 E. Flamingo Ste. 120
Las Vegas, Nevada 89109

^{109}Ag, ^{138}Ba, ^{113}Cd, ^{142}Ce, ^{52}Cr, ^{63}Cu, ^{54}Fe, ^{201}Hg, ^{24}Mg, ^{97}Mo, ^{144}Nd, ^{62}Ni, ^{123}Sb, ^{77}Se, ^{82}Se, ^{119}Sn, ^{88}Sr, SS, ^{128}Te, ^{49}Ti, ^{50}V, ^{67}Zn

67 Martin Marietta Energy System
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

^{81}Br, ^{46}Ca, ^{52}Cr, ^{54}Cr, ^{63}Cu, ^{164}Dy, ^{151}Eu, ^{180}Hf, ^{144}Nd, ^{148}Nd, ^{150}Nd, ^{58}Ni, ^{190}Os, ^{207}Pb, ^{208}Pb, ^{190}Pt, ^{198}Pt, ^{242}Pu, ^{87}Rb, ^{144}Sm, ^{152}Sm,

67 Martin Marietta Energy Systems
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

^{154}Sm, ^{120}Sn, ^{84}Sr, ^{88}Sr, SS, TGS, ^{46}Ti, ^{49}Ti, ^{203}Tl, ^{64}Zn

68 Martin Marietta Energy Systems
Y-12 Plant
Post Office Box Y
Oak Ridge, Tennessee 37830

^{6}Li, ^{7}Li, ^{176}Lu

69 Massachusetts Institute of Technology
Box 69
Cambridge, Massachusetts 02139

^{58}Fe, ^{190}Os, ^{84}Sr

70 Mayo Foundation
200 1st Street SW
Box 10,000
Rochester, Minnesota 55905

^{42}Ca, ^{44}Ca, ^{48}Ca

71 Medi-Physics, Incorporated
Accounts Payable
P.O. Box 6950
Richmond, California 94806

^{124}Te, ^{68}Zn

72 Michigan State University
Attn: Accounts Payable
366 Administration Building
East Lansing, Michigan 48824

^{40}Ca

73 Michigan State University
NSCL Cyclotron Laboratory
South Shaw Lane
East Lansing, Michigan 48824-1321

^{40}Ca

74 Microfoils
P. O. Box 283
Argonne, Illinois 60439

^{60}Ni, ^{207}Pb, ^{208}Pb, ^{186}W

75 MicroMatter Company
Route 1, Box 728
Eastsound, Washington 98245

^{115}In, ^{207}Pb, ^{208}Pb, ^{108}Pd, ^{124}Sn

76 Mississippi, University of
University, Mississippi 38677

^{44}Ca, ^{48}Ca, ^{150}Sm, ^{152}Sm, SS, ^{128}Te, ^{130}Te, TGS

77 Missouri, University of, Kansas City
5100 Rockhill Road
Kansas City, Missouri 64110

^{50}Cr

78 National Bureau of Standards
Accounting Division
Gaithersburg, Maryland 20899

^{44}Ca, ^{65}Cu, ^{54}Fe, ^{6}Li, ^{25}Mg, ^{146}Nd, ^{60}Ni, ^{206}Pb, ^{67}Zn

79 National Institutes of Health
Accounts Payable DFM/Attn: Louise Clar
9000 Rockville Pike
Building 31, Room B1B33
Bethesda, Maryland 20205

^{43}Ca, ^{43}Ca, ^{44}Ca, ^{112}Cd, ^{65}Cu

80 New York, State University of
3435 Main Street
Buffalo, New York 14214

^{57}Fe, ^{118}Sn, ^{119}Sn

81 New York, State University of
Research Foundation
Stony Brook, New York 11790

^{40}Ca, ^{140}Ce, ^{74}Ge, ^{146}Nd, ^{154}Sm, ^{120}Sn, ^{128}Te

82 New York, State University of
Research Foundation
Binghamton, New York 13901

^{130}Te

83 North Carolina, University of
Chapel Hill, North Carolina 27514

SS, ^{64}Zn

84 Northrop Corporation
Space Laboratories
3901 West Broadway
Hawthorne, California 90250

^{208}Pb, SS, TGS

85 Northwestern University
Physics & Astronomy Department
2145 Sheridan Road
Evanston, Illinois 60201

SS

86 Notre Dame, University of
Notre Dame, Indiana 46556

^{110}Pd

87 NASA
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena, California 91109

^{199}Hg, ^{202}Hg

88 Ohio State University
Research Foundation
1314 Kinnear Road
Columbus, Ohio 43212

^{150}Nd

89 Ohio University
Accounts Payable
Scott Quad
Athens, Ohio 45701

^{34}S, SS

90 Oregon State University
Corvallis, Oregon 97330

^{108}Pd, ^{110}Pd

91 Pennsylvania State University
University Park, Pennsylvania 16802

^{110}Cd, ^{153}Eu

92 Pittsburgh, University of
Pittsburgh, Pennsylvania 15213

^{170}Er, ^{242}Pu, TGS

93 Porphyrin Products
P. O. Box 31
Logan, Utah 84321

^{63}Cu

94 Princeton University
James Forrestal Campus
Princeton, New Jersey 08540

^{81}Br, ^{63}Cu, ^{71}Ga, ^{6}Li, ^{207}Pb, ^{128}Te, ^{130}Te

95 Proctor and Gamble Company
Post Office Box 175
Groesbeck Station
Cincinnati, Ohio 45239

^{42}Ca, ^{44}Ca

96 Purdue University
Purchasing Department
Accounts Payable
Freehafer Hall
West Lafayette, Indiana 47907

^{44}Ca, ^{180}Hf, ^{25}Mg, ^{61}Ni, ^{170}Yb

97 Radiation Monitoring Devices, Incorpora
44 Hunt Street
Watertown, Massachusetts 02172

^{6}Li

98 Reactor Experiments, Inc.
963 Terminal Way
San Carlos, California 94070

^{6}Li

99 Redland, University of
1200 E. Colton Avenue
Redland, California 92373

^{112}Sn, ^{114}Sn, ^{116}Sn, ^{118}Sn, ^{120}Sn, ^{122}Sn, ^{124}Sn, TGS

100 Rochester, University of
575 Elmwood Avenue
Rochester, New York 14627

^{143}Nd, TGS

101 Rockwell International Corporation
Rocketdyne Division
Attn: Accounts Payable
6633 Canoga Avenue
Canoga Park, California 91303

SS

102 Rutgers-The State University
Disbursement Process Control
P. O. Box 1089
Piscataway, New Jersey 08854

^{57}Fe, ^{190}Os, ^{82}Se, ^{168}Yb, ^{172}Yb

103 Sandia Corporation
Post Office Box 5800
Albuquerque, New Mexico 87115

^{44}Ca, ^{180}W

104 Southern Illinois University
Carbondale, Illinois 62901

SS

105 Stanford University
P. O. Box 4409
Stanford, California 94305

^{28}Si, ^{29}Si, SS

106 Tennessee, University of
Knoxville, Tennessee 37916

^{162}Dy, ^{164}Dy, ^{166}Er, ^{208}Pb, TGS, ^{174}Yb

107 Texas Christian University
P. O. Box 29010A, TCU Station
Fort Worth, Texas 76129

^{29}Si

108 U. S. Navy
Naval Ocean Systems Center
Accounting Branch Code 122
271 Catalina Boulevard
San Diego, California 92152-5122

^{196}Hg, ^{200}Hg, ^{202}Hg, ^{204}Hg

109 U.S. Services Incorporated
19 Ox Bos Lane
Summit, New Jersey 97901

^{109}Ag, ^{53}Cr, ^{54}Fe, ^{6}Li, ^{95}Mo, ^{207}Pb, ^{105}Pd, ^{194}Pt, ^{33}S, ^{87}Sr, ^{50}V, ^{182}W

110 Union College
Schenectady, New York 12308

^{40}Ca

111 United States Department of Agriculture
Research Service
P. O. Box 53326
New Orleans, Louisiana 70150

^{48}Ca, ^{54}Fe, ^{56}Fe, ^{57}Fe, ^{58}Fe, ^{25}Mg, ^{24}Mg, ^{92}Mo, ^{95}Mo, ^{96}Mo, ^{100}Mo, ^{60}Ni, ^{61}Ni, ^{62}Ni, ^{64}Zn, ^{67}Zn, ^{70}Zn

112 United States Department of Interior
Geology Survey
Bldg. 21, Denver Federal Center
Denver, Colorado 80225

^{114}Cd, ^{65}Cu, ^{113}In, ^{26}Mg, ^{84}Sr, ^{203}Tl, ^{66}Zn

113 United States Geological Survey
Financial Management
National Center, Room 1447-A
12201 Sunrise Valley Drive
Reston, Virginia 22092

^{167}Er, ^{180}Hf, ^{87}Rb, ^{28}Si, ^{30}Si

114 University of Arkansas
Purchasing Section-321 Admin. Bldg.
Fayetteville, Arkansas 72701

^{107}Ag

115 University of California
San Francisco Accounting Office
CED 322
San Francisco, California 94143

^{113}Cd

116 University of California
Los Alamos National Laboratory
Accounting Dept.
P. O. Box 1663
Los Alamos, New Mexico 87545

^{109}Ag, ^{40}Ca, ^{106}Cd, ^{110}Cd, ^{111}Cd, ^{114}Cd, ^{163}Dy, ^{54}Fe, ^{73}Ge, ^{74}Ge, ^{191}Ir, ^{176}Lu, ^{24}Mg, ^{150}Nd, ^{208}Pb, ^{96}Ru, ^{76}Se, ^{77}Se, SS, ^{125}Te, ^{126}Te, ^{130}Te, TGS, ^{203}Tl, ^{180}W, ^{183}W, ^{184}W, ^{186}W, ^{91}Zr

117 University of California San Diego
Accounting Office (Q-027)
La Jolla, California 92093

^{57}Fe, ^{110}Pd, SS

118 University of Chicago
Account Payable
1525 E. Hyde Park Boulevard
Chicago, Illinois 60615

^{80}Se

119 University of Cincinnati
Purchasing Department
Cincinnati, Ohio 45221

^{57}Fe, SS, ^{125}Te

120 University of Florida
Department of Chemistry
Room 318, Leigh Hall
Gainesville, Florida 32611

^{109}Ag

121 University of Illinois
252 Administration Building
Accounting Division
506 South Wright Street
Urbana, Illinois 61801

^{114}Cd, ^{57}Fe, ^{33}S, SS, ^{64}Zn

122 University of Kentucky
Chemistry Department
Room 120 Chemistry-Physics Building
Lexington, Kentucky 40506-0055

^{24}Mg, SS

123 University of Kentucky
Physics & Astronomy
74 Chemistry-Physics Building
Lexington, Kentucky 40506

SS

124 University of Kentucky
College of Pharmacy
907-909 Rose Street
Lexington, Kentucky 40536-0082

^{170}Er, ^{152}Sm

125 University of Michigan
Accounts Payable
3036 Administrative Services Building
Ann Arbor, Michigan 48109

^{57}Fe

126 University of Minnesota
Business Office
1919 University Avenue
St. Paul, Minnesota 55104

^{204}Hg

127 University of Missouri
Purchasing Department
General Services Building
Columbia, Missouri 65211

^{113}Cd, ^{50}Cr, ^{158}Gd, ^{74}Ge, ^{104}Ru, ^{182}W, ^{186}W, ^{67}Zn

128 University of New Hampshire
Controller's Office
Accounts Payable Department
Durham, New Hampshire 03824-3547

SS

129 University of Pennsylvania
Purchasing Dept.
3451 Walnut Street
Philadelphia, Pennsylvania 19104

^{40}Ca, ^{6}Li, ^{24}Mg

130 University of Rhode Island
Graduate School of Oceanography
South Ferry Road
Narragansett, Rhode Island 02882

^{208}Pb

131 University of South Carolina
Attn: Accounts Payable Department
516 S. Main Street
Columbia, South Carolina 29208

^{74}Ge, ^{84}Sr, SS

132 University of Southern California
Accounts Payable
P. O. Box 77967
Los Angeles, California 90089-1141

^{194}Pt

133 University of Texas
P.O. Box 688
Richardson, Texas 75080

^{74}Ge, ^{138}La, ^{26}Mg, ^{207}Pb, SS

134 Upjohn Company, Inc.
301 Henrietta Street
Kalamazoo, Michigan 49006

SS

135 Utah State University
Purchasing Services UMC3
1330 East 700 North
Logan, Utah 84322

^{54}Fe

136 Various Customers

^{66}Zn

137 Virginia Commonwealth University (GAD)
901 W. Franklin Street
Richmond, Virginia 23209

^{54}Fe

138 Virginia Polytechnic Institute
Blacksburg, Virginia 24061

^{57}Fe

139 Virginia, University of
Charlottesville, Virginia 22903

^{40}Ca, ^{44}Ca, ^{48}Ca, ^{198}Hg, ^{204}Hg, SS, TGS

140 Washington, University of
400 Administration Building
Seattle, Washington 98105

^{180}Hf, ^{201}Hg, ^{204}Hg, ^{60}Ni, ^{148}Sm, ^{154}Sm, TGS, ^{186}W

141 Wayne State University
Detroit, Michigan 48202

^{70}Zn

142 West Valley Nuclear Services Co., Inc.
Attention: Accounts Payable
Post Office Box 191
West Valley, New York 14171-0191

^{43}Ca, ^{207}Pb, ^{84}Sr, ^{66}Zn

143 Westinghouse Electric Corporation
Bettis Atomic Power Laboratory
Post Office Box 79
West Mifflin, Pennsylvinia 15122

SS

144 Westinghouse Electric Corporation
Research and Development Center
Beulah Road, Churchill Borough
Pittsburgh, Pennsylvania 15235

^{208}Pb

145 Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

^{7}Li

146 Wisconsin, University of
750 University Avenue
Madison, Wisconsin 53706

^{202}Hg

147 Woods Hole Oceanographic Institute
Woods Hole, Massachusetts 02543

^{150}Nd, ^{204}Pb, ^{84}Sr

148 Wyoming, University of
Laramie, Wyoming 82070

^{58}Ni, ^{60}Ni, ^{61}Ni, ^{62}Ni, ^{64}Ni, SS

149 Yale University
20 Ashmun Street
New Haven, Connecticut 06520

^{208}Pb, TGS

8. FOREIGN

AUSTRALIA

150 Australian National University
P. O. Box 4
Canberra, A. C. T., Australia

^{35}Cl, ^{37}Cl, ^{57}Fe, ^{191}Ir, ^{139}La, ^{6}Li, ^{186}Os, ^{190}Os, ^{192}Os, ^{208}Pb, ^{192}Pt, ^{194}Pt, ^{195}Pt, ^{196}Pt, ^{47}Ti, ^{91}Zr

151 Commonwealth Scientific and Ind. Res. O
Division of Applied Physics
University Grounds, City Road, Chippend
Sydney, N. S. W., Australia

^{34}S

152 Embassy of Australia
1601 Massachusetts Avenue, N.W.
Washington, D.C. 20036

SS

153 La Trobe University
Bundoora, Victoria
Australia 3083

^{98}Mo

154 Monash University
Wellington Road
Clayton, Victoria, Australia

^{57}Fe

155 New South Wales, University of
P. O. Box 1
Kensington, NSW 2033, Australia

^{57}Fe

156 University of Melbourne
School of Physics
Parkville, Victoria, 3052
Australia

^{111}Cd, ^{113}Cd, ^{62}Ni, ^{49}Ti, ^{171}Yb

157 Western Australia of Technology
Purchasing Department Kent Street
Bentley,
AUSTRALIA 6102

^{208}Pb, ^{122}Te, ^{67}Zn

AUSTRIA

158 Geologishe Bundesanstalt
Rasumofskygasse 23
A-1030 Wien
Vienna, Austria

^{84}Sr, SS

159 IAEA
Wagramerstrasse 5
P. O. Box 100
A-1400
Vienna, Austria

^{176}Lu

160 Osterreichische Akademie Der Wissenscha
Institut Fur Radiumforschung
Und Kernphysik
Boltzmanngasse 3
A-1090, Wien, Austria

^{50}Cr

BELGIUM

161 Institut National des Radioelements
Service des Achats
Zoning Industrieldu Wainage
B - 6200 Fleurus
Belgium

^{84}Sr

162 Joint Research Centre
Central Bureau for Nuclear Measurements
Steenweg op Retie
2400 Geel
Belgium

^{77}Se, ^{28}Si, ^{30}Si, SS

163 Katolieke Universiteit Leuven
Instituut Voor Kern-En Stralingsfysika
Celestijnenlaan 200 D
3030 Leuven, Belgium

^{124}Te, ^{125}Te, ^{180}W

164 Universite De Liege
Centre De Recherches Du Cyclotron
Sart Tilman
B-4000 Liege 1
Belgium

^{190}Os

BRAZIL

165 Conselho Nacional De Desenvolvimento
Cientifico E Technologico - CNPQ
Av. W/3 Norte Q.507 Lote 2
Brasilia - DE
Brazil

^{119}Sn

CANADA

166 Animal Research Centre
Agriculture Canada Research Branch
Finance & Material Management Unit
Central Experimental Farm, Bldg. 60
Ottawa, Ontario K1A 0C6
Canada

^{65}Cu

167 Atomic Energy of Canada Limited
Radiochemical Co.
P. O. Box 13500
Kanata, Ontario K2K 1X8
Canada

^{54}Fe, ^{58}Fe, ^{152}Gd, ^{62}Ni, SS

168 Atomic Energy of Canada Limited
Chalk River, Ontario, Canada

^{6}Li

169 McMaster University
Hamilton, Ontario, Canada

^{134}Ce, ^{163}Dy, ^{167}Er, ^{153}Eu, ^{155}Gd, ^{74}Ge, ^{176}Lu, ^{171}Yb

170 Ministry of Natural Resources
Research Accounts - District Office
R. R. #2
Maple, Ontario
CANADA L0J 1E0

^{54}Fe, ^{84}Sr, ^{86}Sr, ^{50}Ti

171 National Research Council
Financial Services
Building M-58, Montreal Road
Ottawa, Ontario K1A 0R6
Canada

^{107}Ag, ^{109}Ag

172 Royal Ontario Museum
100 Queens Park
Toronto, Ontario, Canada M5s 2c6

^{176}Lu, ^{150}Nd

173 S.Y.E.P. #1002 xx4
c/o P. O. Box 1000
Agassiz, British Columbia V0M .A0
Canada

^{77}Se, ^{82}Se

174 Toronto, University of
Toronto, Ontario, Canada

^{63}Cu, ^{65}Cu, ^{6}Li, ^{7}Li

175 TRIUMF
4004 Wesbrook Mall
Vancouver, British Columbia
Canada V6T 2A3

^{44}Ca, ^{54}Fe, ^{74}Se, ^{88}Sr, SS, TGS

176 University of Regina
Regina, Saskatchewan, Canada

^{176}Lu

177 Western Ontario, University of
Accounts Payable
Stevenson Lawson Bldg. Rm. 280
London, Ontario, Canada N6A 5B8

^{26}Mg, SS

CHINA

178 China Business Enterprises, Incorporate
16 East 42nd Street
New York, New York 10017

^{136}Ce, ^{167}Er, ^{155}Gd, ^{177}Hf, ^{138}La, ^{139}La, ^{96}Mo, ^{98}Mo, ^{100}Mo, ^{150}Nd, ^{187}Os, ^{204}Pb, ^{208}Pb, ^{147}Sm, ^{84}Sr, SS, ^{186}W, ^{171}Yb

DENMARK

179 Haldor Topsoe A/S
Nymollevej 55, 2800 Lyngby
Denmark

^{61}Ni

180 Kobenhauns Universitet
Niels Bohr Institutet
Tandem Accelerator Laboratory
Riso, 4000 Roskilde
Denmark

^{110}Pd

ENGLAND

181 Agricultural & Food Research Council
Food Research Institute
Colney Lane
Norwich, NR4 7UA
England

^{67}Zn

182 Amersham International Limited
White Lion Road Amersham
Buckinghamshire England HP7 9LL

^{40}Ca, ^{112}Cd, ^{114}Cd, ^{50}Cr, ^{84}Sr, SS, ^{168}Yb

183 Birmingham, University of
Edgbaston, Birmingham 15, England

^{106}Cd, SS, ^{50}Ti

184 Bradford, University of
Bradford 7, England

^{208}Pb, ^{122}Te, ^{47}Ti, ^{64}Zn

185 British Embassy
3100 Massachusetts Avenue, N. W.
Washington, D. C. 20008

^{48}Ca, ^{95}Mo, ^{208}Pb, ^{33}S, SS, ^{50}Ti

186 Department of Geology
University of Southampton
Highfield, Southampton
SO9 5NH, England

^{138}La, ^{176}Lu

187 Levy Hill Laboratories Limited
5 Sheffield House
Fieldings Road
Cheshunt, Herts EN8 9TJ
England

^{6}Li

188 Liverpool, University of
Liverpool 3, England

^{92}Mo, ^{94}Mo, ^{100}Mo, ^{58}Ni, ^{96}Ru, ^{154}Sm, ^{67}Zn

189 Manchester Royal Infirmary
Central Finance Department
132 Hathersage Road
Manchester M13 9WL
England

^{194}Pt

190 Manchester University
Manchester 13, England

^{113}Cd, ^{50}Cr, ^{188}Os, ^{154}Sm, ^{184}[illegible]

191 Medical Research Council
Harwell, Didcot
Oxon OX11 0RD
England

^{198}Pt

192 Oxford, University of
Nuclear Physics Laboratory
21 Banbury Road
Oxford, England

^{152}Sm

193 The Open University
Finance Division
Sherwood House
Bletchley, Milton Keynes
Buckinghamshire, England

^{92}Mo, ^{94}Mo, ^{100}Mo, ^{58}Ni, ^{96}Ru, ^{154}Sm

194 United Kingdom Freight Forwarding Offic
25 Broadway
New York, New York 10004

^{42}Ca, ^{53}Cr, ^{7}Li, ^{176}Lu, ^{143}Nd, ^{145}Nd, ^{62}Ni, ^{64}Ni, ^{34}S, ^{123}Sb, ^{118}Sn, ^{124}Sn, SS, ^{47}Ti, ^{49}Ti

195 University of London
Royal Holloway and Bedford New College
Egham Hill
Egham, Surrey TW20 0EX
England

^{138}La, ^{145}Nd, ^{208}Pb, ^{84}Sr

196 University of London, King's College
The Strand
London W.C.2R, 2LS
England

^{144}Sm, ^{149}Sm, ^{182}W, ^{184}W

197 University of Manchester
Department of Medical Biophysics
Stopford Building, Oxford Road
Manchester M13 9PT
England

^{50}Cr, ^{194}Pt

FRANCE

198 Commissariat A L'Energie Atomique
Office Des Rayonnements Ionisants
Purchasing Department
B.P. 21
91190 Gif-Sur-Yvette, France

^{104}Ru, SS

199 Compagnie Oris Industrie
Purchasing Department
B.P. 21
91190 Gif-Sur-Yvette,
France

^{138}La

200 Fondation Scientifique de la Geologie
et de ses Appilcations
Rue du Doyen Marcel Roubault
B.P. 40, F-54501 Vandoeuvre
Cedex, France

^{71}Ga, ^{95}Mo, ^{85}Rb, ^{32}S, ^{34}S, ^{182}W,
^{91}Zr

201 Grand Accelerateur D'Ions Lourds
Boite Postale No. 5027
14021 Caen Cedex
France

^{170}Er, ^{154}Sm

202 Institut Max von Laue-Paul Langevin
Cedex 156
38 Grenoble-Gare, France

^{199}Hg

203 Laboratoire De Chimie Nucleaire
B.P. 20
67037 Strasbourg Cedex
France

^{192}Os

GERMANY

204 Amersham Buchler Gmbh & Company KG
1 Gieselweg
3300 Braunschweig
West Germany

^{50}Cr, ^{6}Li, ^{33}S, SS, ^{130}Te

205 Bochum, Ruar-Universitat
463 Bochum, West Germany

^{6}Li

206 Darmstadt, Technischen Hochschule
61 Darmstadt, Germany

^{100}Mo, TGS, ^{171}Yb

207 Der Universitat Gottingen
Zweites Physikalisches Institut
Bunsenstrabe 7-9
D-3400 Gottingen
Germany

^{208}Pb, ^{77}Se

208 Fachbereich Physik
der TU-Munchen
Strahlenschutzabt. Z 62
James-Franck-Weg
D-8046 Garching B. Munchen, West German

SS, ^{96}Zr

209 Freie und Hansestadt Hamburg
2 Hamburg-Banrenfeld, Germany

^{168}Er, TGS

210 Freie Universitat Berlin
SFB-161
Arnimallee 14
1 Berlin 33,
W. Germany

^{44}Ca, ^{114}Cd, ^{70}Ge, ^{205}Tl

211 Gesellschaft fur Kernenergieverwertung
Schiffbau und Shiffahrt mbH
2054 Geesthacht-Tesperhude
Reaktorstrasse 1, West Germany

^{96}Ru

212 Gesellschaft fur Schwerionenforschung,
Planckstr. 1
D-6100 Darmstadt 11
Federal Republic of Germany
Germany

^{44}Ca, ^{54}Fe, ^{64}Ni, ^{204}Pb, ^{96}Ru, SS,
TGS, ^{90}Zr, ^{91}Zr, ^{92}Zr

213 GKSS-Forschungszentrum
Geesthacht GMBH
Max Planck-Str. 1
D 2054 Geesthacht
West Germany

SS

214 Hahn-Meitner-Institut
fur Kernforschung Berlin, Sekton Kernph
Berlin, Germany

^{40}Ca, ^{35}Cl, ^{50}Cr, ^{32}S, ^{119}Sn, SS, TGS,
^{46}Ti, ^{70}Zn

215 Institut fur Strahlenphysik
der Universitat Stuttgart
Allmandring 3
D-7000 Stuttgart 80,
West Germany

^{146}Nd

216 Isotron GMBH
Westhafenstr. 1
1000 Berlin-65
West Germany

^{63}Ni, ^{122}Te

217 Kernforschungsanlage Julich GmbH
Postfach 1913
D-517 Julich, FRG
West Germany

^{6}Li

218 Kernforschungszentrum Karlsruhe
Postfach 3640
7500 Karlsruhe
West Germany

^{104}Pd, ^{147}Sm, ^{122}Te, ^{123}Te, ^{124}Te

219 Koln, Universitat
Zulpicher Str. 47
5 Koln 1, Germany

^{40}Ca, ^{70}Ge, ^{150}Nd, ^{195}Pt, ^{128}Te, TGS, ^{96}Zr

220 Max Planck Institut fur Kernphysik
Saupfercheckweg
Heidelberg, Germany

^{204}Hg, ^{192}Os, ^{198}Pt, ^{154}Sm, ^{124}Sn, SS

221 Max-Planck Institut
Bottingerstrasse 6/8,
D34 Gottingen, West Germany

^{70}Ge, ^{72}Ge, ^{73}Ge, ^{6}Li

222 Schering Aktiengesellschaft
Rechnungswesen
Mullerstrafe 170-178
1000 Berlin 65
West Germany

^{60}Ni, ^{206}Pb, ^{203}Tl

223 Sektion Physik
Der Universitat Munchen
Technologisches Labor
8046 Garching -Am Coulombwall 1, West G

SS, TGS, ^{90}Zr, ^{91}Zr, ^{92}Zr, ^{94}Zr

224 Universitat zu Koln
II. Physikalisches Institut
Zulpicher Str. 77N
D-5000 Koln
West Germany

^{153}Eu, TGS

225 Westfalischen Wilhelm S-Univ. of Munste
Schlobplatz 4, D-4400
Munster, West Germany

^{84}Sr

ISRAEL

226 Government of Israel
Ministry of Defense
850 Third Avenue
New York, New York 10022

^{190}Os

227 Landseas Corporation
1212 Avenue of the Americas
New York, New York 10036

^{44}Ca, ^{54}Fe, ^{70}Ge, ^{74}Ge, ^{104}Pd, ^{108}Pd, ^{110}Pd, ^{195}Pt, ^{196}Pt, ^{198}Pt, ^{32}S, ^{30}Si

228 Tel-Aviv University
Ramat-Avit
Tel-Aviv, Israel

^{119}Sn

ITALY

229 Consiglio Nazionale delle Ricerche
Centre for Radiochemistry and Activatio
Viale Taramelli, 12 27100
Pavia, ITALY

^{114}Cd, ^{50}Cr, ^{61}Ni, ^{152}Sm, ^{122}Te

230 Instituto Nazionale Di Fisica Nucleare
Laboratori Nazionali Di Legnaro
Via Romea n. 4 - 35030 Legnaro
Padova Italy

^{130}Ba, ^{041}Ca, ^{48}Ca, ^{106}Cd, ^{114}Cd, ^{116}Cd, ^{63}Cu, ^{65}Cu, ^{54}Fe, ^{56}Fe, ^{70}Ge, ^{198}Hg, ^{199}Hg, ^{200}Hg, ^{202}Hg, ^{204}Hg, ^{115}In, ^{191}Ir, ^{193}Ir, ^{39}K, ^{24}Mg, ^{26}Mg, ^{148}Nd, ^{60}Ni, ^{62}Ni, ^{64}Ni, ^{190}Os, ^{192}Os, ^{206}Pb, ^{104}Pd, ^{110}Pd, ^{33}S, ^{28}Si, ^{30}Si, ^{118}Sn, ^{120}Sn, ^{122}Sn, ^{124}Sn, SS, ^{50}Ti, ^{96}Zr

231 Istituto Nazionale di Fisica Nucleare
Via A. Tari, 3
80138 Napoli, Italy

^{30}Si, SS

232 Societa' Italiana Chimici R.L.
Via Luigi Pulci 27
Rome, Italy

^{6}Li, ^{190}Os

JAPAN

233 Daiichi Radioisotope Laboratories, Ltd.
10-5, Nihonbashi 3-Chome, Chuo-Ku
Tokyo 103 Japan

^{203}Tl, ^{68}Zn

234 Japan Atomic Energy Research Institute
Tokai Research Establishment
Tokai-Mura, Naka-Gun, Ibaraki-Ken
Japan

SS

235 Japan Radioisotope Association
Hon-Komagome 2 Chome 28
Bunkyo-Ku
Tokyo, Japan

^{107}Ag, ^{109}Ag, ^{130}Ba, ^{132}Ba, ^{134}Ba, ^{42}Ca, ^{48}Ca, ^{110}Cd, ^{114}Cd, ^{142}Ce, ^{37}Cl, ^{50}Cr, ^{52}Cr, ^{53}Cr, ^{161}Dy, ^{163}Dy, ^{167}Er, ^{170}Er, ^{54}Fe, ^{57}Fe, ^{58}Fe, ^{155}Gd, ^{156}Gd,

235 Japan Radioisotope Association
Hon-Komagome 2 Chome 28
Bunkyo-Ku
Tokyo, Japan

^{160}Gd, ^{70}Ge, ^{177}Hf, ^{202}Hg, ^{138}La, ^{6}Li, ^{7}Li, ^{175}Lu, ^{24}Mg, ^{26}Mg, ^{94}Mo, ^{98}Mo, ^{100}Mo, ^{145}Nd, ^{150}Nd, ^{58}Ni, ^{64}Ni, ^{187}Os, ^{192}Os, ^{206}Pb, ^{208}Pb, ^{104}Pd, ^{194}Pt, ^{195}Pt, ^{196}Pt, ^{198}Pt, ^{87}Rb, ^{96}Ru, ^{104}Ru, ^{74}Se, ^{76}Se, ^{78}Se, ^{80}Se, ^{28}Si, ^{29}Si, ^{30}Si, ^{147}Sm, ^{150}Sm, ^{152}Sm, ^{154}Sm, ^{112}Sn, ^{86}Sr, ^{88}Sr, SS, ^{180}Ta, ^{128}Te, TGS, ^{46}Ti, ^{47}Ti, ^{48}Ti, ^{50}Ti, ^{203}Tl, ^{205}Tl, ^{184}W, ^{186}W, ^{172}Yb, ^{173}Yb, ^{174}Yb, ^{64}Zn, ^{66}Zn, ^{68}Zn, ^{70}Zn

236 Kansai Electronics Co., Ltd.
8 Toganocho
Kitaku, Osaka, Japan

^{135}Ba, ^{137}Ba, ^{138}Ba, ^{110}Cd, ^{50}Cr, ^{63}Cu, ^{65}Cu, ^{166}Er, ^{153}Eu, ^{54}Fe, ^{56}Fe, ^{57}Fe, ^{160}Gd, ^{7}Li, ^{25}Mg, ^{96}Mo, ^{58}Ni, ^{60}Ni, ^{61}Ni, ^{204}Pb, ^{206}Pb, ^{29}Si, ^{112}Sn, ^{114}Sn, ^{116}Sn, ^{117}Sn, ^{118}Sn, ^{119}Sn, ^{120}Sn, ^{122}Sn, ^{124}Sn, SS, TGS, ^{46}Ti, ^{180}W, ^{182}W, ^{184}W, ^{186}W, ^{66}Zn

237 Kyushu University
3576 Oaza Hakozaki
Fukuoka-shi, Japan

^{206}Pb, TGS

238 New Metals & Chemicals Corp., Ltd.
Shin Dai-Ichi Building 4-13
3 Chome, Nihonbashi
Chuo-Ku, Tokyo, Japan

^{114}Cd, SS

KOREA

239 Hanyang University
Department of Physics
17 Haengdang-Dong
Seongdong-Ku
Seoul 133, KOREA

^{57}Fe

240 Modu Corporation
33-10 Queens Boulevard
Long Island City, New York 11101
New York

SS, ^{124}Te

241 Yonzei University
Department of Physics
Seoul, KOREA 120-00

^{57}Fe

MEXICO

242 Universidad Nacional Autonoma De Mexico
3600 S. Gessner
Suite 288
Houston, Texas 77063

^{87}Rb

NETHERLANDS

243 Isotopen Dienst Benelux
Nassaulaan 28
5111 XE Baarle Nassau
The Netherlands

^{190}Os

244 Kernfysisch Versneller Instituut
Stichting Fom
Zernikelaan 25
NL 9747 AA Groningen
Netherlands

^{178}Hf, ^{193}Ir, ^{175}Lu, ^{144}Nd, ^{145}Nd, ^{105}Pd, ^{195}Pt, ^{196}Pt, ^{173}Yb

245 Netherlands Energy Research Foundation
P. O. Box 80404
2508 GH The Hague
Netherlands

^{117}Sn, ^{122}Sn

246 Stichting Fom Werkgroep KVS-XG P/A
Lab.V.Alg. Natuurkunde
Rijksuniversiteit Groningen
Westersingel 34, 9718 CM Groningen
Netherlands

^{124}Te

247 TNO
Division of Nutrition and Food Research
P.O. Box 360
3700 AJ Zeist
Netherlands

^{63}Cu, ^{54}Fe, ^{76}Se, ^{67}Zn

SCOTLAND

248 Department of Child Health
Attn: Dr. T. Stack
Foresterhill
Aberdeen AB9 22D
Scotland, United Kingdom

^{70}Zn

249 Nuclear Enterprises Limited
Sighthill
Edinburgh 11, Scotland

^{6}Li

SWEDEN

250 Aktiebolaget Atomenergi
Studsvik,
Nykoping, Sweden

^{57}Fe

251 Forskningsinstitutet for Atomfysik
Stockholm 50, Sweden

^{82}Se

252 Lunds Universitet
Radiofysiska Institutionen
Lasarettet
S-221 85 Lund Sweden

^{46}Ti

253 Naturhistoriska riksmuseet
Laboratoriet for Isotopgeologi
Box 50 007, 104, 05 Stockholm, Sweden

^{92}Mo, ^{98}Mo, ^{96}Mo, ^{97}Mo, ^{100}Mo, ^{150}Nd,
^{116}Sn, ^{117}Sn, ^{119}Sn, ^{124}Sn

SWITZERLAND

254 Geneve, Universite de
Geneva, Switzerland 1211
Switzerland
International Business Machines Corpora
Forschungs laboratorium Zurich
8803 Ruschlikon
Switzerland

^{7}Li

255 Swiss Institute for Nuclear Research
5234 Villigen, Switzerland

SS

II. ALPHABETICAL LIST OF ISOTOPES, CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Antimony 123
41, 66

Barium 130
7, 41

Barium 132
58

Barium 135
7, 66

Bromine 081
11, 67, 94

Cadmium 106
116

Cadmium 110
91, 116

Cadmium 111
116

Cadmium 112
79

Cadmium 113
66, 115, 127

Cadmium 114
41, 116, 121

Cadmium 116
3, 17, 65, 112

Calcium 040
81, 110, 116, 129, 139

Calcium 041
58

Calcium 042
17, 53, 70, 79, 95

Calcium 043
22, 79, 142

Calcium 044
42, 60, 70, 76, 78, 79, 95, 96, 103, 139

Calcium 046
70

Calcium 048
12, 17, 67, 72, 73, 76, 111, 139

Cerium 140
39, 81

Cerium 142
66

Chlorine 037
11

Chromium 050
21, 32, 53, 62, 63, 77, 127

Chromium 052
67

Chromium 053
26, 66, 109

Chromium 054
67

Copper 063
12, 19, 28, 59, 60, 67, 93, 94

Copper 065
3, 62, 66, 78, 79, 112

Dysprosium 156
67

Dysprosium 158
44

Dysprosium 160
12

Dysprosium 161
6, 48, 49

Dysprosium 162
106, 116

Dysprosium 164
12, 106

Erbium 164
17

Erbium 167
59, 113

Erbium 168
17, 106

Erbium 170
92, 124

Europium 151
67

Europium 153
12, 91

Gadolinium 152
10, 23

Gadolinium 154

17

Gadolinium 155

48, 49

Gadolinium 157

3

Gadolinium 158

127

Gallium 071

94

Germanium 073

116

Germanium 074

131, 133

Germanium 076

81, 116, 127

Hafnium 176

17

Hafnium 177

17

Hafnium 178

17

Hafnium 179

17

Hafnium 180

67, 96, 113, 140

Indium 113

32, 112

Indium 115

75

Iridium 191

116

Iron 054

37, 58, 66, 78, 109, 111, 116, 135, 137

Iron 056

3, 61, 69, 111

Iron 057

2, 5, 8, 17, 20, 32, 33, 37, 43, 63, 80, 102, 111, 117, 119, 121, 125, 138

Iron 058

11, 23, 32, 56, 63, 111

Lanthanum 138

133

Lead 206

78, 147

Lead 207

67, 74, 75, 94, 109, 133, 142

Lead 208

67, 74, 75, 84, 106, 116, 144, 149

Lead High Purity 208

27, 130

Lithium 006

12, 18, 25, 68, 78, 94, 97, 98, 109, 129

Lithium 007

9, 12, 14, 25, 34, 54, 68, 145

Lutetium 176

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Lutetium High Purity 176

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Magnesium 024

18, 60, 116, 122, 129

Magnesium 025

17, 78, 96, 111

Magnesium 026

66, 111, 112, 133

Mercury 196

45, 46

Mercury 198

46, 108, 139

Mercury 199

51, 87

Mercury 200

46, 108

Mercury 201

66, 140

Mercury 202

46, 47, 51, 87, 108, 146

Mercury 204

108, 126, 139, 140

Molybdenum 092

111

Molybdenum 095

109, 111

Molybdenum 096
111
Molybdenum 097
66
Molybdenum 100
1, 4, 16, 111
Neodymium 142
17, 53
Neodymium 143
100
Neodymium 144
53, 67
Neodymium 146
66
Neodymium 148
67, 78, 81
Neodymium 150
27, 67, 88, 116, 147
Nickel 058
32, 67, 148
Nickel 060
74, 78, 111, 140, 148
Nickel 061
37, 52, 96, 111, 148
Nickel 062
30, 39, 66, 111, 148
Nickel 064
3, 148
Osmium 190
67, 69, 102
Palladium 105
109
Palladium 108
75, 90
Palladium 110
86, 90, 117
Platinum 192
3
Platinum 194
3, 109, 132
Platinum 195
17
Platinum 196
67
Platinum 198
3, 17, 67
Plutonium 242
67, 92
Potassium 039
17
Rubidium 085
11, 38
Rubidium 087
11, 15, 38, 50, 67, 113
Ruthenium 099
116
Ruthenium 101
17
Ruthenium 102
32, 41, 59
Ruthenium 104
29, 127
Samarium 144
67
Samarium 148
140
Samarium 150
76
Samarium 152
17, 67, 76, 124
Samarium 154
67, 81, 140
Selenium 076
3, 12, 116
Selenium 077
11, 66, 116
Selenium 080
118
Selenium 082
3, 66, 102
Silicon 028
105
Silicon 029
105, 107, 113

Silicon 030

14, 113

Silver 107

114

Silver 109

41, 66, 109, 116, 120

Special Services

3, 11, 12, 15, 16, 17, 27, 31, 32, 36, 37, 40, 50, 56, 57, 59, 63, 66, 67, 76, 83, 84, 85, 89, 101, 104, 105, 116, 117, 119, 121, 122, 123, 128, 131, 133, 134, 139, 143, 148

Strontium 084

15, 27, 32, 67, 69, 112, 131, 142, 147

Strontium 086

66

Strontium 087

17, 35, 109

Strontium 088

64, 67

Sulfur 033

31, 37, 57, 109, 121

Sulfur 034

89

Target Preparation Stable

3, 5, 12, 16, 17, 18, 53, 56, 59, 64, 67, 76, 84, 92, 99, 100, 106, 116, 139, 140, 149

Tellurium 120

41

Tellurium 122

39, 58

Tellurium 124

71

Tellurium 125

116, 119

Tellurium 126

66, 76, 116

Tellurium 128

81, 94

Tellurium 130

76, 82, 94, 116

Thallium 203

32, 42, 67, 112, 116

Tin 112

99

Tin 114

99

Tin 116

99

Tin 118

66, 80, 99

Tin 119

13, 80

Tin 120

3, 67, 81, 99

Tin 122

3, 41, 99

Tin 124

3, 41, 75, 99

Titanium 046

67

Titanium 047

17

Titanium 048

3

Titanium 049

66, 67

Titanium 050

3

Tungsten 180

103, 116

Tungsten 182

109, 127

Tungsten 183

116

Tungsten 184

116

Tungsten 186

12, 74, 116, 127, 140

Vanadium 050

66, 109

Ytterbium 168

58, 102

Ytterbium 170

96

Ytterbium 171
48, 49
Ytterbium 172
102
Ytterbium 174
106
Ytterbium 176
7
Zinc 064
67, 83, 111, 121
Zinc 066
136, 142
Zinc 067
66, 78, 111, 127
Zinc 068
65, 71, 112
Zinc 070
24, 55, 56, 141
Zinc High Purity 070
111
Zirconium 091
116
Zirconium 092
3
Zirconium 094
16, 32
Zirconium 096
3

B. FOREIGN

Antimony 123
194
Barium 130
235
Barium 132
235
Barium 135
236
Barium 136
235
Barium 137
236
Barium 138
230, 236
Cadmium 106
183, 230
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IV. STABLE ISOTOPE SALES - FY 1986

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
ANTIMONY-123	1	70.0	101	1	200.0	290				2	270.0	391
BARIUM-130	1	10.0	255	1	20.0	510	1	10.0	255	3	40.0	1020
BARIUM-132	2	42.0	271	1	21.0	261				3	63.0	533
BARIUM-135	1	100.0	110	1	250.0	275	1	100.0	110	3	450.0	495
BARIUM-136				1	400.0	380				1	400.0	380
BARIUM-137				1	504.0	126				1	504.0	126
BARIUM-138				2	700.0	225				2	700.0	225
BROMINE-81	2	2300.0	1955				2	2525.0	2564	4	4825.0	4519
CADMIUM-106				2	150.0	3600	1	14.0	265	3	164.0	3865
CADMIUM-110	1	100.0	380	2	150.0	570	1	19.0	100	4	269.0	1050
CADMIUM-111				1	300.0	1260	1	121.0	429	2	421.0	1689
CADMIUM-112				3	38848.0	33020	1	2078.0	1766	4	40926.0	34787
CADMIUM-113	3	100.0	465	2	600.0	2790				5	700.0	3255
CADMIUM-114	2	450.0	225	10	84900.0	42450	1	5000.0	1811	13	90350.0	44486
CADMIUM-116	1	35.0	100	2	300.0	825	3	807.0	1765	6	1142.0	2690
CALCIUM 41	1	1.0	1275	1	500.0	300				2	501.0	1575
CALCIUM-40	4	1163.0	872	2	4300.0	3225	1	150.0	100	7	5613.0	4197
CALCIUM-42	3	370.0	6678	3	250.0	4512	2	510.0	9166	8	1130.0	20357
CALCIUM-43	2	11.0	3694				1	10.0	3358	3	21.0	7052
CALCIUM-44	8	3077.0	11731	4	6830.0	26295	3	500.0	1883	15	10407.0	39910
CALCIUM-48	3	111.0	19391	5	534.0	96289	4	20.0	3948	12	665.0	119629
CERIUM-136				1	10.0	364				1	10.0	364
CERIUM-140	1	2000.0	100				1	2000.0	100	2	4000.0	200
CERIUM-142	1	80.0	120	1	700.0	1260				2	780.0	1380
CHLORINE-35				2	500.0	275				2	500.0	275
CHLORINE-37	1	20.0	210	2	62.0	500				3	82.0	710
CHROMIUM-50	6	825.0	8803	9	2390.0	22679				15	3215.0	31483
CHROMIUM-52				2	625.0	500	1	446.0	272	3	1071.0	772
CHROMIUM-53	3	64.0	342	2	2040.0	10614				5	2104.0	10956
CHROMIUM-54							1	125.0	3971	1	125.0	3971
COPPER-63	8	1654.0	1266	3	1000.0	800	2	10500.0	6348	13	13154.0	8414
COPPER-65	4	553.0	967	5	2600.0	4550	5	1418.0	2143	14	4571.0	7661
DYSPROSIUM-156							1	20.0	426	1	20.0	426
DYSPROSIUM-158	1	1.0	100							1	1.0	100
DYSPROSIUM-160							-1	-13000.0	-18355	-1	-13000.0	-18355
DYSPROSIUM-161	1	534.0	100	1	133.0	100				2	667.0	200
DYSPROSIUM-162	1	20.0	100				1	90.0	100	2	110.0	200
DYSPROSIUM-163				4	1361.0	400				4	1361.0	400
DYSPROSIUM-164	1	20.0	100					-50000.0	-9577	1	-49980.0	-9477
ERBIUM-164							1	100.0	223	1	100.0	223
ERBIUM-166				1	1000.0	150				1	1000.0	150
ERBIUM-167	1	500.0	125	3	900.0	300	1	401.0	100	5	1801.0	525
ERBIUM-168	1	500.0	100	1	1500.0	300	1	500.0	100	3	2500.0	500
ERBIUM-170	2	2639.0	801	2	456.0	230				4	3095.0	1032
EUROPIUM-151							1	65650.0	11226	1	65650.0	11226
EUROPIUM-153	1	300.0	105	3	5036.0	1775	1	338.0	100	5	5674.0	1980
GADOLINIUM-152	2	45.0	954	1	2.0	100				3	47.0	1054
GADOLINIUM-154							1	25.0	100	1	25.0	100
GADOLINIUM-155	1	61.0	100	3	163.0	2085				4	224.0	2186
GADOLINIUM-156				2	187.0	200				2	187.0	200
GADOLINIUM-157							1	100.0	100	1	100.0	100
GADOLINIUM-158	1	300.0	105							1	300.0	105
GADOLINIUM-160				2	400.0	360				2	400.0	360
GALLIUM-71	1	200.0	200	1	100.0	100				2	300.0	300
GERMANIUM-70				6	1450.0	4262				6	1450.0	4262
GERMANIUM-72				1	100.0	165				1	100.0	165

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
GERMANIUM-73				1	100.0	715	1	22.0	120	2	122.0	835
GERMANIUM-74	2	700.0	1575							2	700.0	1575
GERMANIUM-76	2	115.0	943	3	150.0	1243	1	28.0	202	6	293.0	2388
H.P. LEAD 208	2	500.0	2875							2	500.0	2875
H.P. PU-242	1	2.0	31				1	1.0	100	2	3.0	131
H.P. ZINC 70							1	5.0	845	1	5.0	845
HAFNIUM-176							1	12.0	100	1	12.0	100
HAFNIUM-177				2	215.0	400	1	7.0	100	3	222.0	500
HAFNIUM-178				1	50.0	100	1	200.0	188	2	250.0	288
HAFNIUM-179							1	100.0	100	1	100.0	100
HAFNIUM-180	2	530.0	850				2	267.0	309	4	797.0	1159
HIGH PURITY LUTE				3	15.0	18524	1	10.0	10410	4	25.0	28934
INDIUM-113	1	300.0	1515				1	20.0	101	2	320.0	1616
INDIUM-115	1	200.0	100	1	100.0	100				2	300.0	200
IRIDIUM-191				2	125.0	475	1	30.0	90	3	155.0	565
IRIDIUM-193				2	150.0	315				2	150.0	315
IRON-54	6	500.0	2725	9	4197.0	22875	5	840.0	4394	20	5537.0	29994
IRON-56	2	780.0	312	4	13200.0	5300	3	8250.0	2534	9	22230.0	8146
IRON-57	21	3008.0	42561	19	1875.0	26534	3	38.0	492	43	4921.0	69588
IRON-58	6	354.0	36680	2	160.0	17176	2	3.0	322	10	517.0	54178
LANTHANUM-138	1	5.0	219	6	134.0	5889				7	139.0	6109
LANTHANUM-139				1	100.0	100				1	100.0	100
LEAD-204				3	550.0	4220				3	550.0	4220
LEAD-206	1	150.0	202	4	900.0	1215	1	200.0	270	6	1250.0	1687
LEAD-207	6	1600.0	1600				1	200.0	157	7	1800.0	1757
LEAD-208	7	17400.0	10440	10	3541.0	2450	3	5270.0	2424	20	26211.0	15314
LUTETIUM-175				2	350.0	200				2	350.0	200
LUTETIUM-176				5	15.0	1684	2	60.0	2449	7	75.0	4133
MAGNESIUM-24	4	3010.0	2257	3	240.0	350	1	1000.0	583	8	4250.0	3190
MAGNESIUM-25	1	650.0	5102	1	150.0	1177	3	215.0	1622	5	1015.0	7902
MAGNESIUM-26		-90.0	2	3	600.0	55042	2	20.0	204	5	530.0	55248
MERCURY-196	7	44.0	18082	1	20.0	5569				8	64.0	23651
MERCURY-198	3	524.0	9699	1	100.0	1785	3	110.0	1963	7	734.0	13447
MERCURY-199	1	50.0	1017	1	100.0	2035	1	50.0	1017	3	200.0	4070
MERCURY-200	1	6.0	147	1	100.0	2455	2	60.0	1473	4	166.0	4075
MERCURY-201	2	15.0	324							2	15.0	324
MERCURY-202	4	138.0	2118	2	120.0	1842	4	210.0	3223	10	468.0	7183
MERCURY-204	4	441.0	8159	2	150.0	3217	4	130.0	2803	10	721.0	14180
MOLYBDENUM-092				1	1843.0	460	1	273.0	100	2	2116.0	560
MOLYBDENUM-094				2	37.0	200				2	37.0	200
MOLYBDENUM-095	2	800.0	200	4	3750.0	937	1	400.0	100	7	4950.0	1237
MOLYBDENUM-096				2	2282.0	700	1	334.0	100	3	2616.0	800
MOLYBDENUM-097	1	400.0	120	1	842.0	252				2	1242.0	372
MOLYBDENUM-098				3	763.0	1185				3	763.0	1185
MOLYBDENUM-100	3	750.0	320	4	2468.0	1100	2	314.0	200	9	3532.0	1620
NEODYMIUM-142	1	250.0	462				1	30.0	100	2	280.0	562
NEODYMIUM-143	1	200.0	160	1	500.0	375				2	700.0	535
NEODYMIUM-144	1	400.0	140	1	200.0	100	1	30.0	100	3	630.0	340
NEODYMIUM-145				5	908.0	1055				5	908.0	1055
NEODYMIUM-146	1	300.0	135	1	1000.0	450				2	1300.0	585
NEODYMIUM-148	1	120.0	102	1	200.0	170	2	1010.0	950	4	1330.0	1222
NEODYMIUM-150	3	240.0	600	6	643.0	1445	2	3.0	53	11	886.0	2098
NICKEL-58	2	1098.0	450	3	1529.0	562	1	20.0	100	6	2647.0	1112
NICKEL-60	3	1521.0	475	4	1900.0	550	2	2400.0	600	9	5821.0	1625
NICKEL-61	6	198.0	2868	3	130.0	2002	1	10.0	154	10	338.0	5024
NICKEL-62	3	66.0	494	6	9284.0	80919	2	24.0	215	11	9374.0	81629
NICKEL-64	1	36.0	428	4	303.0	5515	2	237.0	3249	7	576.0	9192

ISOTOPE	DOMESTIC			FOREIGN			PROJECT			TOTAL		
	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS
OSMIUM-187				2	120.0	1668				2	120.0	1668
OSMIUM-188				2	179.0	4439				2	179.0	4439
OSMIUM-190	2	29.0	210	7	1850.0	13412	4	1135.0	6546	13	3014.0	20168
OSMIUM-192				6	580.0	2523				6	580.0	2523
PALLADIUM-104				2	400.0	1460				2	400.0	1460
PALLADIUM-105	1	50.0	107	1	50.0	107				2	100.0	215
PALLADIUM-106				2	106.0	200				2	106.0	200
PALLADIUM-108	2	285.0	498	1	50.0	100				3	335.0	598
PALLADIUM-110	3	285.0	1011	3	250.0	882				6	535.0	1894
PLATINUM-192				1	50.0	975	1	50.0	675	2	100.0	1650
PLATINUM-194	3	450.0	1912	4	530.0	2252	1	200.0	663	8	1180.0	4828
PLATINUM-195				5	155.0	741	1	250.0	967	6	405.0	1708
PLATINUM-196				10	1110.0	4844	1	400.0	1418	11	1510.0	6262
PLATINUM-198				4	145.0	1087	3	613.0	3651	7	758.0	4738
POTASSIUM-39				1	100.0	100	1	300.0	100	2	400.0	200
RUBIDIUM-85	2	1200.0	2103	1	114.0	200				3	1314.0	2303
RUBIDIUM-87	5	965.0	4062	3	1150.0	4830	2	158.0	620	10	2273.0	9512
RUTHENIUM-096				1	617.0	7064				1	617.0	7064
RUTHENIUM-099				2	122.0	550	1	20.0	100	3	142.0	650
RUTHENIUM-101							1	25.0	100	1	25.0	100
RUTHENIUM-102	3	375.0	918							3	375.0	918
RUTHENIUM-104	2	3100.0	9145	2	250.0	737				4	3350.0	9882
SAMARIUM-144				1	100.0	1585	2	40.0	952	3	140.0	2537
SAMARIUM-147				2	200.0	470				2	200.0	470
SAMARIUM-148	1	700.0	490	1	100.0	100				2	800.0	590
SAMARIUM-149				1	311.0	100				1	311.0	100
SAMARIUM-150	1	319.0	127	1	250.0	100				2	569.0	227
SAMARIUM-152	2	1319.0	857	3	453.0	330	3	512.0	524	8	2284.0	1711
SAMARIUM-154	3	720.0	1010	6	2236.0	2940	1	300.0	300	10	3256.0	4250
SELENIUM-74				2	10.0	1872				2	10.0	1872
SELENIUM-76				3	480.0	2592	3	928.0	4184	6	1408.0	6776
SELENIUM-77	2	20.0	283	3	460.0	6509	1	30.0	300	6	510.0	7092
SELENIUM-78				1	30.0	154				1	30.0	154
SELENIUM-80	1	1970.0	2167	1	100.0	110				2	2070.0	2277
SELENIUM-82	2	20.0	553	2	30.0	828	2	320.0	8618	6	370.0	9999
SILICON-28		392.0	352	3	6700.0	6030				3	7092.0	6382
SILICON-29	2	415.0	10166	3	1035.0	25613	1	166.0	4108	6	1616.0	39888
SILICON-30	1	2.0	100	4	325.0	14462	1	83.0	3618	6	410.0	18181
SILVER-107	1	222.0	100	3	2000.0	900				4	2222.0	1000
SILVER-109	4	1000.0	550	2	7000.0	3850	1	100.0	100	7	8100.0	4500
STRONTIUM-84	7	193.0	11020	9	216.0	12336	3	82.0	3635	19	491.0	26992
STRONTIUM-86	1	700.0	105	3	2300.0	405				4	3000.0	510
STRONTIUM-87	2	3250.0	1625				1	600.0	213	3	3850.0	1838
STRONTIUM-88	1	400.0	100	3	1660.0	415	1	2000.0	624	5	4060.0	1139
SULFUR-32				3	600.0	300				3	600.0	300
SULFUR-33	5	540.0	3518	4	417.0	7504				9	957.0	11022
SULFUR-34	1	70.0	189	3	457.0	800				4	527.0	989
TANTALUM-180				1	.3	292				1	.3	292
TELLURIUM-120	1	10.0	620							1	10.0	620
TELLURIUM-122	1	6.0	113	5	1360.0	25711	2	40.0	623	8	1406.0	26447
TELLURIUM-123				1	100.0	2720				1	100.0	2720
TELLURIUM-124	1	20000.0	217000	4	1450.0	15712				5	21450.0	232712
TELLURIUM-125	2	100.0	700				1	15.0	102	3	115.0	802
TELLURIUM-126	2	355.0	585				-1	-200.0	-263	1	155.0	322
TELLURIUM-128	3	480.0	624	3	2000.0	2600				6	2480.0	3224
TELLURIUM-130	5	1285.0	1220	1	6000.0	5400	-1	-500.0	-388	5	6785.0	6232
THALLIUM-203	6	450059.0	742600	3	60160.0	99267	3	1161.0	1593	12	511380.0	843460

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
THALLIUM-205				2	1230.0	553				2	1230.0	553
TIN-112	2	155.0	3278	2	80.0	1692				4	235.0	4970
TIN-114	1	103.0	1823	1	30.0	531				2	133.0	2354
TIN-116	2	155.0	200	2	1400.0	560				4	1555.0	760
TIN-117				3	2625.0	1081				3	2625.0	1081
TIN-118	3	321.0	358	4	1300.0	1475				7	1621.0	1833
TIN-119	3	1598.0	559	4	2000.0	700				7	3598.0	1259
TIN-120	3	655.0	300	4	1382.0	400	4	2500.0	393	11	4537.0	1093
TIN-122	2	250.0	218	4	945.0	830	1	726.0	456	7	1921.0	1505
TIN-124	4	855.0	585	6	2980.0	1640	2	1200.0	528	12	5035.0	2753
TITANIUM-46				4	341.0	2280	1	400.0	1822	5	741.0	4102
TITANIUM-47				7	284.0	2098	2	1367.0	8091	9	1651.0	10189
TITANIUM-48				2	1300.0	845	1	2300.0	1176	3	3600.0	2021
TITANIUM-49	1	10.0	102	1	100.0	1020			-629	2	110.0	493
TITANIUM-50				5	399.0	4538			-438	5	399.0	4100
TUNGSTEN-180				2	50.0	450	2	60.0	433	4	110.0	883
TUNGSTEN-182	2	1800.0	540	3	833.0	320				5	2633.0	860
TUNGSTEN-183							1	11.0	100	1	11.0	100
TUNGSTEN-184				4	950.0	460	2	301.0	200	6	1251.0	660
TUNGSTEN-186	5	2036.0	1112	3	1420.0	711	3	4071.0	1720	11	7527.0	3543
VANADIUM-50	2	3.0	392							2	3.0	392
YTTERBIUM-168	2	16.0	1741	3	625.0	178806				5	641.0	180547
YTTERBIUM-170	1	200.0	1120							1	200.0	1120
YTTERBIUM-171	1	117.0	100	4	668.0	597				5	785.0	697
YTTERBIUM-172	1	117.0	100	1	300.0	255				2	417.0	355
YTTERBIUM-173				3	371.1	300				3	371.1	300
YTTERBIUM-174	1	150.0	442	1	150.0	442				2	300.0	885
YTTERBIUM-176							1	500.0	475	1	500.0	475
ZINC-64	2	850.0	995	3	244.0	561		-48663.0	-25071	5	-47569.0	-23514
ZINC-66	1	60.0	100	2	200.0	345				3	260.0	445
ZINC-67	2	35.0	398	5	480.0	5610	2	110.0	1623	9	625.0	7632
ZINC-68	4	65023.0	276350	4	36170.0	90737	1	24.0	102	9	101217.0	367189
ZINC-70	8	101.0	5940	3	155.0	9427				11	256.0	15367
ZIRCONIUM-90				2	1500.0	1350				2	1500.0	1350
ZIRCONIUM-91				4	321.0	4620	1	10.0	117	5	331.0	4737
ZIRCONIUM-92				2	1500.0	2900			-211	2	1500.0	2688
ZIRCONIUM-94	2	1000.0	3500	1	200.0	670	1	20.0	100	4	1220.0	4270
ZIRCONIUM-96				3	160.0	12794	1	50.0	3195	4	210.0	15989
TOTAL	326	622463.0	1535708	499	387722.4	1172040	179	26835.0	107387	1004	1037020.4	2815136

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