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To get the best results from your instrument, use only genuine LECO consumables!

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Support Materials

A variety of support materials are available to customers of LECO products. Reference Cards offer exploded views of individual instruments, indicating precise locations of spare parts, necessary part numbers, and descriptions of consumable products. Material Safety Data Sheets (MSDS) are also available for a variety of chemical products offered through LECO. These materials may be obtained by contacting your LECO sales representative, or by downloading the latest version from our website, www.leco.com.



Ordering Information/General Terms

Ordering, Customer Assistance, and all Other Inquiries

Toll-Free



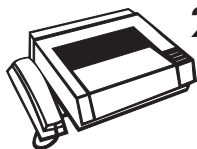
800-292-6141
or a toll call is 269-985-5496

Email



info@leco.com

Fax



269-982-8977

Mail



LECO Corporation
3000 Lakeview Avenue
St. Joseph, MI 49085-2396

VISA, Mastercard, and American Express Accepted.



Terms and Conditions

- Terms: Net 30 days with approved credit.
- Shipments, F.O.B. St. Joseph, Michigan.
Freight charges are prepaid and added to the invoice.
- Sales taxes will be added where applicable.
- Returns must be approved in advance; re-stocking fee may be applied. Return Material Authorization (RMA) is required for all returns. Contact LECO for RMA information.
- All specifications, part numbers, and policies are current for the United States at the time this catalog went to print, and are subject to change without notice.
- Disclaimer: LECO products are intended for use by professional laboratory personnel who are familiar with the handling of these materials. Our products are not for use in household, drug, medical, or cosmetic applications. The buyer and/or user assumes full responsibility for the safe handling, storage, application, and proper disposal of all products ordered from this catalog.
- Complete TERMS and CONDITIONS are included with quotations and invoices.

Information for Elemental Analysis

LECO Corporation is the world leader in elemental determinators for various organic applications. Carbon, Hydrogen, Nitrogen/Protein, Sulfur, and Mercury may be determined on various types of samples including foods, feeds, oilseeds, meats, wet/dry milled products, fertilizers, petroleum products, pharmaceuticals, cements, coal/cokes, and other organic matter.

LECO's determinators are designed with specific capabilities to match the requirements of our customers. Many of the requirements that have been established include precision/accuracy, sample size, instrument range, and hardware/software robustness. In order to obtain the highest level of performance, we recommend that our customers define the following prior to operating our instruments:

Appropriate Sample Size for Your Application

This is generally determined by the type of sample, instrument range, desired precision, level of robustness, sample holder, and methodology requirements. Typically, any elemental determination performed at a mass less than 50 mg is considered a microanalysis; whereas, an analysis performed with a mass of 50 mg to 1 g is considered a macroanalysis. See page 9 for more information on using the appropriate sample size.

Desired Precision and Accuracy for Your Application

Based on standards and a realistic sample size. Appropriate sample size is determined by proven method requirements (for example ASTM or AOAC), level of robustness, and desired sample preparation. Standards are determined by availability and level of certification required for your laboratory. See page 18 for more information on the classification of standards.

Desired Sample Preparation

The level of sample preparation is directly correlated to the heterogeneity of the sample. Most organic products may be analyzed as-is, from the industrial process. However, in order to manipulate a difficult application, it may be required to pre-treat, pre-dry or pelletize the sample prior to its addition to a sample holder. See page 9 for more information on the types of sample containers/sample sizes that may be used for our elemental determinators.

Desired Level of Maintenance Commitment or Level of Robustness

The amount of preventative maintenance performed on any elemental determinator is relative to the instrument's ability to handle the amount and type of sample that is analyzed. We have designed our instruments to maximize the level of robustness based on the lowest amount of involvement by the operator; however, there are several measures that can be taken to maximize the longevity of the instrument. Mainly, routine maintenance, appropriate sample size, and the use of proper consumable scrubbers for each application. See page 26 for more information on LECO's Preventative Maintenance Agreements (PMAs).

At LECO Corporation, we have several trained Application Scientists that are available to help guide you through any question you may have. Please feel free to contact our scientists at 800-292-6141 or 269-985-5496 for support on your application!

Consumable Packs

Purchasing the highest quality consumables at the most affordable price is the fundamental goal of all instrumentation users. In addition, it is very important to maintain the proper inventory of consumables for your annual usage in order to prevent wasteful spending.

With over 30 to 40% discounts on typical list pricing and easily ordered with one part number, LECO's Consumable Packs provide specific consumables for our elemental determinators based on frequency of use and instrument model.

TruEssential Packs

These packages contain single quantities of some of the more frequently used consumables on the TruSpec® and FP-528 instrument models. Pricing is significantly reduced, and all items can be purchased with a single part number.

| Part No. | Description |
|-----------------|---|
| 502-445 | TruEssential Pack (Small Tin) Includes: Anhydron, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles (10), and Small Tin Foil Cups (100) |
| 502-446 | TruEssential Pack (Large Tin) Includes: Anhydron, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles (10), and Large Tin Foil Cups (100) |
| 502-447 | TruEssential Pack (Small Gel) Includes: Anhydron, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles (10), and Small Gel Caps (100) |
| 502-448 | TruEssential Pack (Medium Gel) Includes: Anhydron, N Catalyst, Lecosorb, Copper Sticks, Quartz Wool Strips, Reticulated Crucibles (10), and Medium Gel Caps (100) |

5K Consumable Packs

These packages contain all of the necessary consumables to perform 5000 analyses. Pricing is significantly reduced, and all items can be purchased with a single part number.

| Part No. | Description |
|-----------------|--------------------------------|
| 616-199 | FP-528 (w/small tin foil cups) |
| 617-016 | FP-528 (w/small gel caps) |
| 789-431 | SC-144DR |
| 789-433 | FP/CNS-2000 |

General Combustion Supplies

Reagents/Packing Material

| Part No. | Description | Contents |
|-----------------|--------------------------------|-------------------------|
| 501-077 | Iron Chip | 908 g (2 lb.) bottle |
| 501-081 | Glass Wool | 454 g (1 lb.) box |
| 501-171 | Anhydron | 454 g (1 lb.) bottle |
| 501-608 | Quartz Wool Wadding | 200 g package |
| 502-174 | Lecosorb (20/30 Mesh) | 500 g bottle |
| 502-177 | Quartz Wool | 50 g package |
| 502-188 | Alumina Oxide Pellets | 200 g bottle |
| 502-226 | Silver Vanadate | 10 g bottle |
| 502-283 | Sorbis® | 500 per package |
| 502-310 | Steel Wool | 454 g (1 lb.) package |
| 502-311 | Furnace Reagent II | 100 g bottle |
| 502-351 | Halogen Scrubber | 50 g bottle |
| 502-359 | Magnesium Oxide Reagent | 200 g bottle |
| 608-379 | Quartz Wool Strips | Ten 15-inch strips |
| 617-441 | Afterburner Filter for TruSpec | 1 each |
| 617-548 | Porous Filter for Reagent Tube | 1 each |
| 763-265 | Glass Wool | 227 g (1/2 lb.) package |
| 769-608 | Antimony | 200 g bottle |
| 769-610 | F/Cl Absorbent Material | 225 g bottle |

Accelerators/Catalysts/Combustion Aids

| Part No. | Description | Contents |
|-----------------|--------------------------------|---------------------------------|
| 501-046 | Sucrose | 20 g bottle |
| 501-426 | COM-AID™ (For Solids) | 454 g (1 lb.) bottle |
| 501-427 | COM-AID™ (For Liquids) | 454 g (1 lb.) bottle |
| 501-441 | Sucrose | 50 g bottle |
| 501-609 | Furnace Reagent | 100 g bottle |
| 501-621 | Copper Turnings | 200 g bottle |
| 501-636 | Vanadium Pentoxide | 250 g bottle |
| 502-049 | Nitrogen Catalyst | 50 g bottle |
| 502-181 | Tungsten Trioxide | 60 g bottle |
| 502-189 | Copper Sticks | 100 g ampule |
| 502-190 | Copper Oxide Wire | 100 g bottle |
| 502-192 | Graphite Impregnated Felt Disc | Five 3/4" dia. 1/8" thick discs |
| 502-196 | Carbon Black Powder | 10 g bottle |
| 502-228 | Graphite Pad | One 2 1/4" x 2 1/4" pad |
| 502-301 | Tungsten Trioxide | 125 g bottle |
| 502-304 | Copper Sticks | 100 g bottle |
| 502-304-500 | Copper Sticks | 500 g bottle |
| 502-321 | COM-CAT™ | 250 g bottle |

O-Rings

See individual consumable and spares reference cards for precise location of o-rings for most instruments. For exact o-ring sizes, please refer to the drawings on pages 7 and 8.

AMA254

| Part No. | Location |
|----------|----------|
|----------|----------|

| | |
|-------------|---------|
| 614-822-117 | Cuvette |
|-------------|---------|

CHNS-932, CHN-900

| Part No. | Location |
|----------|----------|
|----------|----------|

| | |
|---------|-------------------|
| 589-551 | Sample Drop Block |
|---------|-------------------|

| | |
|---------|------------------------|
| 605-828 | Catalyst/Reaction Tube |
|---------|------------------------|

| | |
|---------|------------------------|
| 605-830 | Catalyst/Reaction Tube |
|---------|------------------------|

| | |
|---------|------------|
| 760-224 | Lance Tube |
|---------|------------|

| | |
|---------|--------------------------|
| 772-520 | Catalyst Heater Assembly |
|---------|--------------------------|

| | |
|---------|--------------------------|
| 772-738 | Catalyst Heater Assembly |
|---------|--------------------------|

| | |
|---------|-------------------|
| 772-910 | Sample Drop Block |
|---------|-------------------|

| | |
|---------|-------------------|
| 774-283 | Sample Drop Block |
|---------|-------------------|

| | |
|---------|--------------------------|
| 774-613 | Sample Drop Block Piston |
|---------|--------------------------|

| | |
|---------|----------------------|
| 778-114 | Catalyst Heater Tube |
|---------|----------------------|

CHN-2000 (See TruSpec, FP-528, CHN-2000)

CN-2000 (See FP-2000)

CNS-2000 (See FP-2000)

CR-412

| Part No. | Location |
|----------|----------|
|----------|----------|

| | |
|---------|------------|
| 606-333 | Lance Tube |
|---------|------------|

| | |
|---------|-----------------------|
| 611-476 | Inner Combustion Tube |
|---------|-----------------------|

| | |
|---------|-----------------------|
| 611-477 | Outer Combustion Tube |
|---------|-----------------------|

| | |
|---------|--------------|
| 772-520 | Reagent Tube |
|---------|--------------|

| | |
|---------|--------------|
| 773-320 | Reagent Tube |
|---------|--------------|

FP/CN/NS/CNS-2000

| Part No. | Location |
|----------|----------|
|----------|----------|

| | |
|---------|----------------------|
| 601-442 | Catalyst Heater Tube |
|---------|----------------------|

| | |
|---------|----------------------|
| 601-939 | Doser Valve Assembly |
|---------|----------------------|

| | |
|---------|--------|
| 605-828 | Filter |
|---------|--------|

| | |
|---------|-------------------|
| 606-333 | Combustion System |
|---------|-------------------|

| | |
|---------|-------------|
| 609-271 | Radial Seal |
|---------|-------------|

| | |
|---------|-------------------|
| 611-431 | Combustion System |
|---------|-------------------|

| | |
|---------|-----------------------|
| 611-476 | Inner Combustion Tube |
|---------|-----------------------|

| | |
|---------|-----------------------|
| 611-477 | Outer Combustion Tube |
|---------|-----------------------|

| | |
|---------|-------------------|
| 760-841 | Combustion System |
|---------|-------------------|

| | |
|---------|---------------------|
| 771-991 | Pre-cooler Assembly |
|---------|---------------------|

| | |
|---------|----------------------|
| 772-269 | Doser Valve Assembly |
|---------|----------------------|

| | |
|---------|---------------------------------|
| 772-520 | Furnace Filter Tube/Filter Tube |
|---------|---------------------------------|

| | |
|---------|--------------------------|
| 772-738 | Catalyst Heater Assembly |
|---------|--------------------------|

| | |
|---------|--------------|
| 773-320 | Reagent Tube |
|---------|--------------|

| | |
|---------|-------------------|
| 774-489 | Combustion System |
|---------|-------------------|

| | |
|---------|-------------------|
| 775-314 | Combustion System |
|---------|-------------------|

| | |
|---------|--------------|
| 778-116 | Ballast Tank |
|---------|--------------|

FP-528 (See TruSpec, FP-528, CHN-2000)

NS-2000 (See FP-2000)

SC-144DR/S-144DR/C-144

| Part No. | Location |
|----------|----------|
|----------|----------|

| | |
|---------|-----------------------|
| 616-068 | Inner Combustion Tube |
|---------|-----------------------|

| | |
|---------|--------------|
| 772-520 | Reagent Tube |
|---------|--------------|

| | |
|---------|--------------|
| 773-320 | Reagent Tube |
|---------|--------------|

| | |
|---------|-----------------------|
| 783-897 | Outer Combustion Tube |
|---------|-----------------------|

O-Rings

See individual consumable and spares reference cards for precise location of o-rings for most instruments. For exact o-ring sizes, please refer to the drawings on pages 7 and 8.

SC-444/444DR, SC-432/432DR

| Part No. | Location |
|----------|-----------------------|
| 606-333 | Lance Tube |
| 611-476 | Inner Combustion Tube |
| 611-477 | Outer Combustion Tube |
| 772-520 | Reagent Tube |
| 773-320 | Reagent Tube |

VTF-900

| Part No. | Location |
|----------|----------------------|
| 608-089 | Inner Pyrolysis Tube |
| 608-090 | Outer Pyrolysis Tube |
| 608-091 | Outer Pyrolysis Tube |

TFE2000

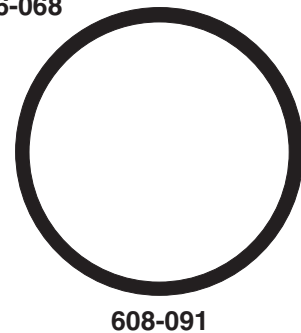
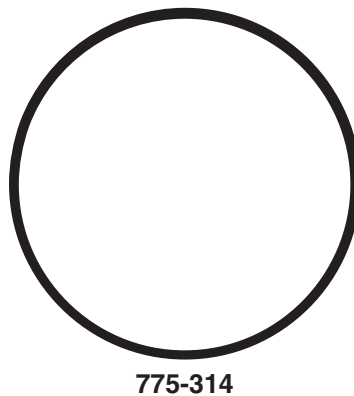
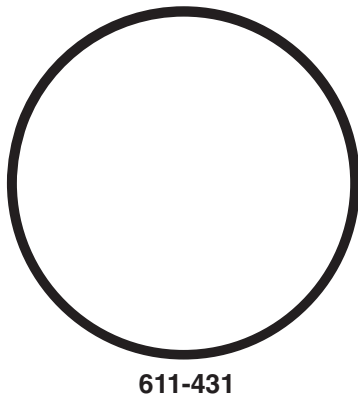
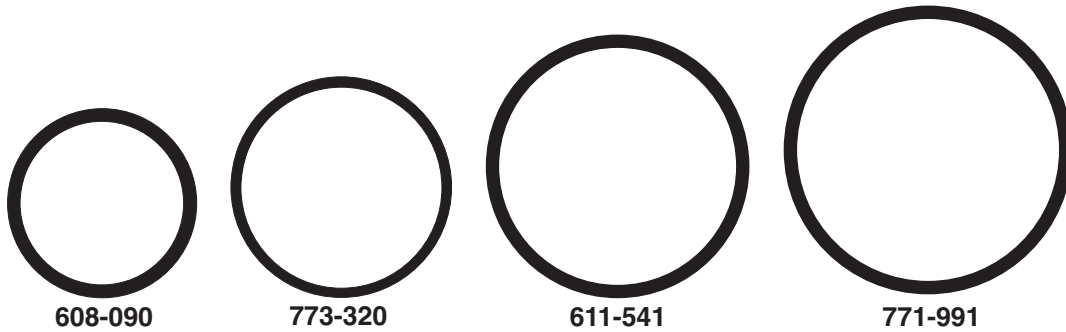
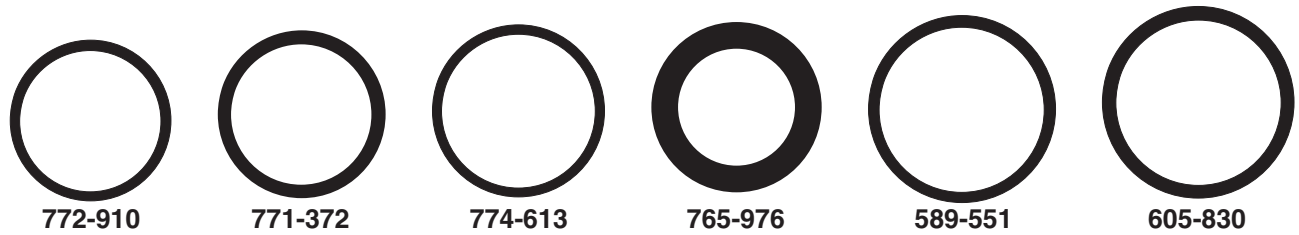
| Part No. | Location |
|----------|----------------------------|
| 611-541 | HVR Drive Piston |
| 611-543 | HVR Block Tubing Assembly |
| 611-544 | Vial Seal Gasket |
| 611-790 | Upper Extraction Piston |
| 771-372 | Lower Extraction Piston |
| 773-913 | Vial Block Transducer Seal |

TruSpec, FP-528, CHN-2000

| Part No. | Location |
|----------|-------------------------------------|
| 589-551 | Sliding Block |
| 601-442 | Reduction Tube/Lance Tube (TruSpec) |
| 601-504 | Loading Head |
| 601-939 | Cylinder Block |
| 763-379 | Condensing Block |
| 765-976 | Filter Tube |
| 772-269 | Valve Stem |
| 772-520 | Reagent Tube |
| 772-738 | Heater Assembly |
| 772-910 | Piston |
| 773-913 | Sample Block |
| 778-116 | Assembly |
| 778-120 | Gasket |
| 780-831 | Lance |

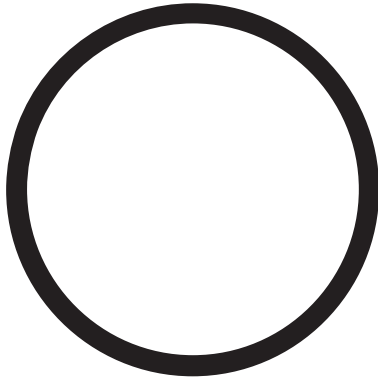
O-Rings

Drawings to scale.

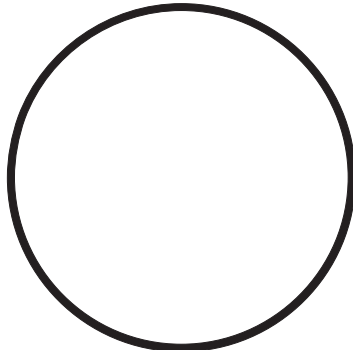


O-Rings

Drawings to scale.



611-476

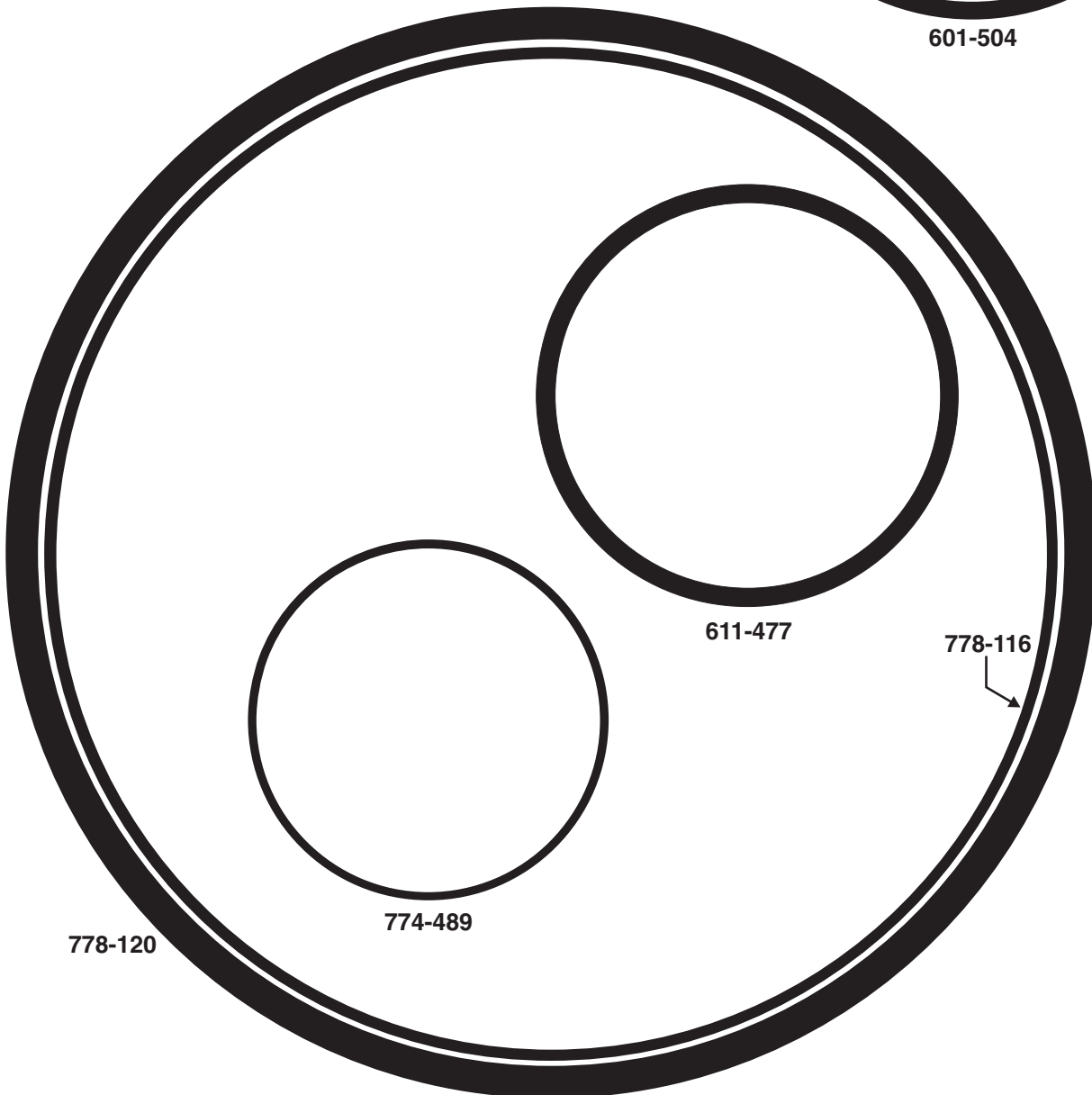


763-379



783-897

601-504



611-477

778-116

778-120

774-489

Sample Containers/Sample Size

Sample Containers for our Macro CHN Determinators

When making a decision on what sample container to use for your application, use the following chart as a guideline. Note: In order to extend the interval between ash removal, it is recommended to use the container with the lowest ash content.

| Sample Container | Sample Size Range | Ash Content | Best Used For | Where Used? |
|-------------------------|--------------------------|--------------------|----------------------|--------------------|
| Small Gel Caps | 50-250 mg* | Low | Feeds, Forages | Only for Nitrogen |
| Medium Gel Caps | 50-500 mg* | Low | Oilseeds, Petfood | Only for Nitrogen |
| Small Tin Foil Cups | 50-350 mg | Medium | Coal/Coke, Feeds | N, CN or CHN |
| Large Tin Foil Cups | 50 mg to 1000 mg | High | Soils, Meats | N, CN or CHN |
| Tin Capsule | 50 mg to 350 mg | Medium | Slurries, Liquids | N, CN or CHN |

*For solid samples only

For microanalysis, there are several capsules and crucibles that may be used. Please refer to pages 10-13 in this catalog for a listing.

Using the Appropriate Sample Size

The amount of sample that may be used as the appropriate sample size for certain matrices is governed by the need to achieve certain limits of quantitation with respect to the determined content of the sample.

According to work done by M.J. Gardner in "Sample Heterogeneity and Analytical Precision: How Much Sample Should I Take for Analysis", the uncertainty for different sample sizes diminishes with larger sample sizes; however, the level of improvements in precision reach a point of limited return beyond 0.5 g (500 mg) for samples of higher elemental concentration and 1 g (1000 mg) for samples of lower elemental concentration.

Assuming ~63 μm particle size on a powdered sample at an elemental concentration of 10%, Gardner determined the following uncertainties based on sample size.

| Sample Size (mg) | 90% probability interval ($\pm\%$) |
|-------------------------|--|
| 100 | 1.1 |
| 200 | 0.8 |
| 500 | 0.5 |
| 1000 | 0.4 |

Assuming ~63 μm particle size on a powdered sample at an elemental concentration of 1%, Gardner determined the following uncertainties based on sample size.

| Sample Size (mg) | 90% probability interval ($\pm\%$) |
|-------------------------|--|
| 100 | 3.7 |
| 200 | 2.6 |
| 500 | 1.6 |
| 1000 | 1.1 |
| 2000 | 0.8 |

It is best to contact our Applications Laboratory for suggestions on sample size for your matrices. Knowing the appropriate sample size for your desired precision is imperative when lengthening the maintenance interval on an elemental determinator.

- For standard feed, milling, and coal applications, use 150 to 250 mg for <5% RSD
- For standard food, petfood, and rendered products, use 250 to 500 mg for <5% RSD
- For soil, meat, and low-level concentration samples, use 500 to 1000 mg for <5% RSD
- For pharmaceutical applications, use 1 to 20 mg for <5% RSD

¹Analytical Proceedings including Analytical Communications, March 1995, Vol 32 Pg 115-116

Capsules and Crucibles

Refer to page 12 and 13 for a visual guide to selecting the correct replacement capsule or crucible.

AMA254

| Part No. | Description | Contents |
|-------------|-------------------|---------------|
| 614-822-101 | Small Boat Loop | 1 per package |
| 614-822-102 | Small Nickel Boat | 1 per package |
| 614-822-103 | Beam Boat | 1 per package |
| 614-822-104 | Spoiler | 1 per package |
| 614-822-113 | Large Boat Loop | 1 per package |
| 614-822-114 | Large Nickel Boat | 1 per package |

CHNS-932, CHN-900, VTF-900

| Part No. | Description | Contents |
|-------------|---|-----------------|
| 501-045-125 | Zircon Crucibles, for typical C/H/N analyses | 25 per package |
| 502-206 | Silver Capsules, for microsample C/H/N/S analyses | 1000 per bottle |
| 502-227 | Tin Capsules, for microsample C/H/N/S/O analyses | 500 per bottle |
| 606-026 | Graphite Crucibles, for typical oxygen analyses | 10 per package |

CHN-2000 (See TruSpec, FP-528, CHN-2000)

CNS (See FP-2000)

CR-412 (See SC-444/444DR, SC-432/432DR, CR-412)

FP/CN/NS/CNS-2000

| Part No. | Description | Contents |
|-------------|---|-----------------|
| 502-343 | Nickel Boat Liner | 100 per package |
| 528-203-250 | Ceramic Boats, for macrosamples/horizontal-loading furnaces | 250 per package |
| 529-203 | Ceramic Boats, for macrosamples/horizontal-loading furnaces | 100 per package |

FP-528 (See TruSpec, FP-528, CHN-2000)

SC-144DR/S-144DR/C-144

| Part No. | Description | Contents |
|-------------|---------------------|-----------------|
| 529-204 | Ceramic Boats | 50 per package |
| 529-204-250 | Ceramic Boats | 250 per package |
| 616-086 | Boat Stop (stepped) | 1 per package |

SC-444/444DR, SC-432/432DR, CR-412, TruSpec S

| Part No. | Description | Contents |
|-------------|---|-----------------|
| 528-203-250 | Ceramic Boats, for macrosamples/horizontal-loading furnaces | 250 per package |
| 529-203 | Ceramic Boats, for macrosamples/horizontal-loading furnaces | 100 per package |

Capsules and Crucibles

Refer to pages 12 and 13 for a visual guide to selecting the correct replacement capsule or crucible.

TGA701, TGA-601

| Part No. | Description | Contents |
|----------|--|-----------------|
| 502-335 | Foil Liners, for lining TGA Crucibles (529-047) | 500 per package |
| 529-042 | Small Ceramic Crucibles (529-043 Cover), for thermogravimetric and proximate analyses (TGA-601 only) | 5 per package |
| 529-043 | Covers, for 529-042 Small Ceramic Crucibles (TGA-601 only) | 5 per package |
| 529-047 | Large Ceramic Crucibles (529-048 Cover), for thermogravimetric and proximate analyses | 5 per package |
| 529-048 | Covers, for 529-047 Large Ceramic Crucibles | 5 per package |

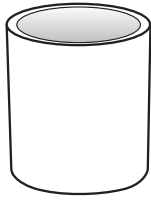
TruSpec, FP-528, CHN-2000

| Part No. | Description | Contents |
|-------------|---|-----------------|
| 501-059 | Tin Capsules, for macrosample analyses of high density materials | 100 per bottle |
| 501-571 | Copper Capsules (seal with 502-008 Tin Plugs), for liquid macrosamples | 100 per bottle |
| 502-008 | Tin Plugs, for use with volatile materials | 150 per bottle |
| 502-040 | Tin Capsules, for macrosample analyses of low density materials | 100 per bottle |
| 502-040-100 | Tin Capsules, for macrosample analyses of low density materials | 1000 per bottle |
| 502-076 | Copper Capsules (seal with 502-077 Tin Plugs), for liquid macrosamples | 1000 per bottle |
| 502-077 | Tin Plugs, for use with volatile materials | 1000 per bottle |
| 502-167 | Tin Capsules, for macrosample analyses of light, fluffy materials | 100 per bottle |
| 502-186-200 | Small Tin Foil Cups (up to 350 mg) | 100 per bottle |
| 502-186-100 | Small Tin Foil Cups (up to 350 mg) | 1000 per bottle |
| 502-338 | Small Gel Caps (up to 250 mg) | 400 per package |
| 502-382 | Medium Gel Caps (up to 500 mg) | 400 per package |
| 502-397 | Large Tin Foil Cups (up to 1 g) | 100 per package |
| 502-397-400 | Large Tin Foil Cups (up to 1 g) | 400 per package |
| 529-026 | Ceramic Crucibles, for typical C/H/N analyses (use with the 616-146 Lance only) | 50 per package |
| 609-170-110 | Gel Cap Sample Dispenser | 1 Kit |
| 614-961-110 | Porous Reticulated Crucible (for liquid samples) | 10 per package |
| 617-605 | Porous Reticulated Crucible (for solid samples) | 10 per package |
| 780-899 | Honeycomb Ceramic Crucible Stop | 1 per package |

VTF-900 (See CHNS-932, CHN-900, VTF-900)

Capsules and Crucibles

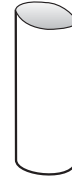
Most commonly used items represented.



501-045-125
Zircon Crucible



502-008
502-077
Tin Plug



502-040
502-040-100
Tin Capsule



502-227
Tin Capsule



502-206
Silver Capsule



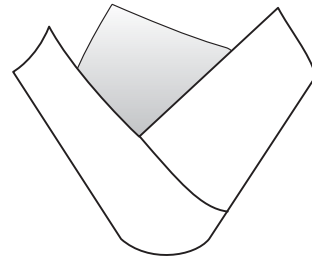
502-338 (*small*)
502-382 (*medium*)
Gel Capsule



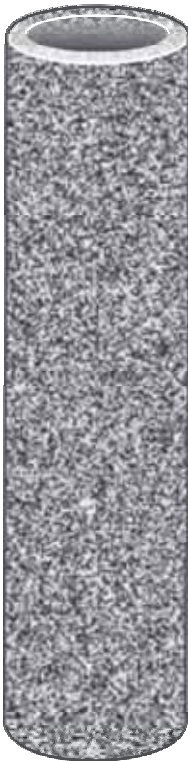
502-167
Tin Capsule
(*macro*)



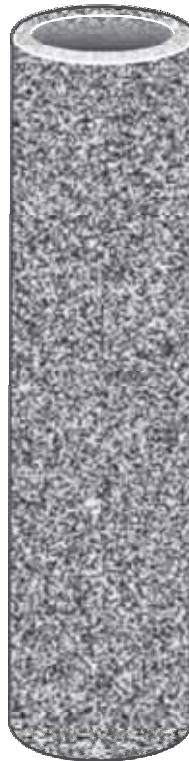
502-187
Tin Capsule
(*micro*)



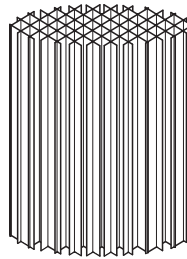
502-186-200 (*small*)
502-186-100 (*small*)
502-397 (*large*)
502-397-400 (*large*)
Tin Foil Cup



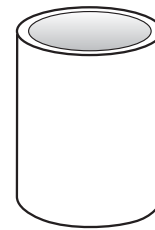
614-961-110
Porous Reticulated
Crucible for solid samples
(*FP-528 & TruSpec*)



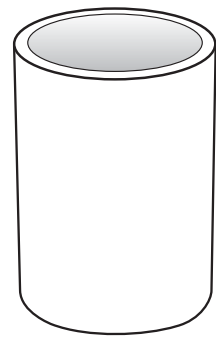
617-605
Porous Reticulated
Crucible for liquid samples
(*FP-528 & TruSpec*)



780-899
Honeycomb
Ceramic
Crucible Stop



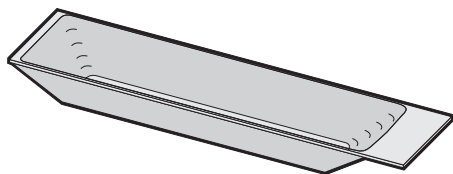
606-026
Graphite
Crucible



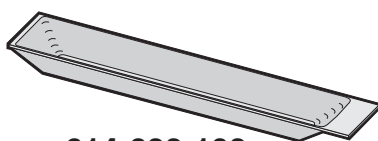
529-026
Ceramic
Crucible
(*CHN-2000*)

Capsules and Crucibles

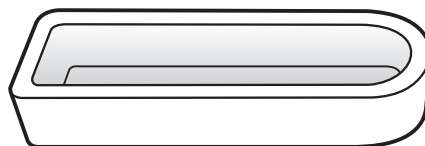
Most commonly used items represented.



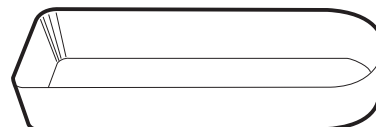
614-822-114
Large Nickel Boat
(AMA254 only)



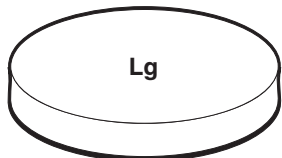
614-822-102
Small Nickel Boat
(AMA254 only)



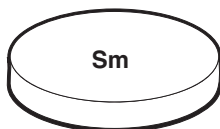
529-203
Ceramic Boat
(SC-400 Series/FP-2000 Series/TruSpec S)



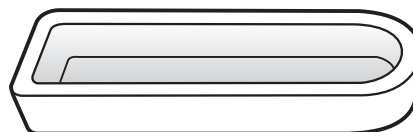
502-343
Nickel Boat Liner



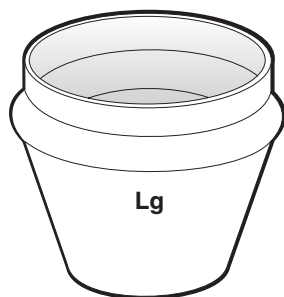
Lg
529-048
Ceramic Cover



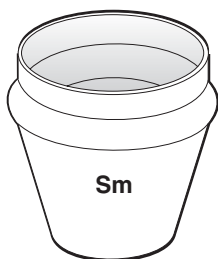
Sm
529-043
Ceramic Cover



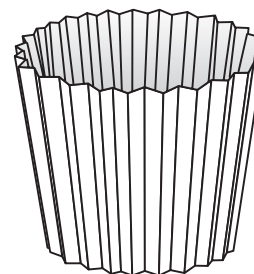
529-204 Ceramic Boat (SC-144 Series)
529-204-250 Ceramic Boat (SC-144 Series)



Lg
529-047
Ceramic Crucible



Sm
529-042
Ceramic Crucible
(for TGA-601 only)



502-335
Foil Liner
(for 529-047 only)

Combustion Tubes and Glassware

Refer to pages 16 and 17 for a visual guide to selecting the correct replacement tubes and glassware.

AMA254

| Part No. | Description |
|-----------------|--------------------|
|-----------------|--------------------|

| | |
|-------------|---------------|
| 614-822-105 | Catalyst Tube |
|-------------|---------------|

CHNS-932, CHN-900, VTF-900

| Part No. | Description | Used On |
|-----------------|-----------------------|----------------------------|
| 604-541 | Quartz Lance Tube | CHN-900, CHNS-932 |
| 605-875 | Reagent Tube | CHN-900, CHNS-932 |
| 608-065 | Lance Tube | VTF-900 |
| 608-129 | Outer Combustion Tube | VTF-900 |
| 608-130 | Inner Combustion Tube | VTF-900 |
| 775-601 | Reagent Tube | CHN-900, CHNS-932, VTF-900 |
| 776-279 | Catalyst Heater Tube | CHN-900, CHNS-932 |

CHN-2000 (See TruSpec, FP-528, CHN-2000)

CNS-2000/CN-2000/NS-2000 (See FP-2000)

CR-412 (See SC-444/444DR, SC-432/432DR, CR-412)

FP/CN/NS/CNS-2000

| Part No. | Description |
|-----------------|-----------------------|
| 601-437 | Catalyst Heater Tube |
| 606-308 | Boat Stop Ceramic |
| 606-309 | Outer Combustion Tube |
| 606-313 | Inner Combustion Tube |
| 606-327 | Reagent Tube |
| 616-632 | Lance Tube |
| 775-601 | Reagent Tube |

FP-528 (See TruSpec, FP-528, CHN-2000)

Combustion Tubes and Glassware

Refer to pages 16 and 17 for a visual guide to selecting the correct replacement tubes and glassware.

SC-144DR/S-144DR/C-144

| Part No. | Description |
|-----------------|-----------------------|
| 616-051 | Purge Tube |
| 616-070 | Inner Combustion Tube |
| 616-086 | Boat Stop Ceramic |
| 616-089 | Outer Combustion Tube |

SC-444/444DR, SC-432/432DR, CR-412, TruSpec S

| Part No. | Description |
|-----------------|------------------------------------|
| 606-308 | Boat Stop Ceramic |
| 606-309 | Outer Combustion Tube |
| 606-313 | Inner Combustion Tube |
| 606-327 | Reagent Tube |
| 606-655 | Optional Large Volume Reagent Tube |
| 616-632 | Lance Tube |

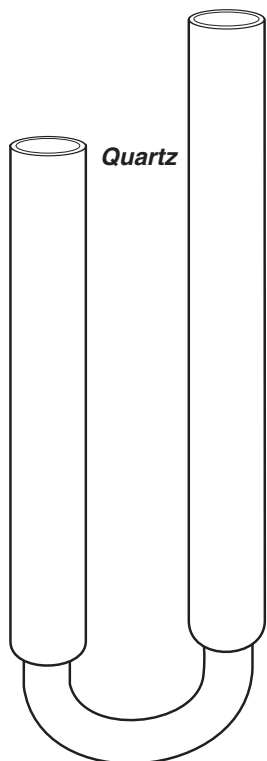
TruSpec, FP-528, CHN-2000

| Part No. | Description | Used On |
|-----------------|---|---------------------------|
| 601-390 | Furnace Filter Tube | FP-528, CHN-2000, TruSpec |
| 601-437 | Catalyst Heater Tube | FP-528, CHN-2000 |
| 614-962 | Lance Tube | FP-528, TruSpec |
| 616-108 | U-Shaped Combustion Tube | FP-528, CHN-2000 |
| 616-146 | Lance Tube | CHN-2000 |
| 617-548 | Reagent Tube | TruSpec |
| 619-065 | U-Shaped Combustion Tube with flat bottom | TruSpec |
| 619-154 | Catalyst Heater Tube | TruSpec |
| 619-268 | High Sensitivity Reagent Tube | TruSpec |
| 619-316 | Extended-Use Glass Filter Tube | TruSpec |
| 771-030 | Bubble Tube | FP-528, CHN-2000 |
| 775-601 | Reagent Tube | FP-528, CHN-2000 |
| 780-899 | Honeycomb Ceramic Crucible Stop | FP-528, CHN-2000 |

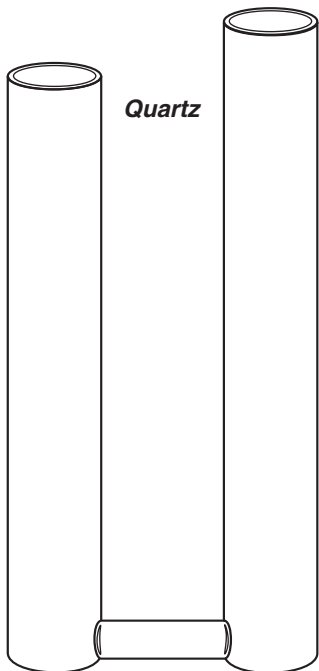
VTF-900 (See CHNS-932, CHN-900, VTF-900)

Combustion Tubes and Glassware

Most commonly used items represented.



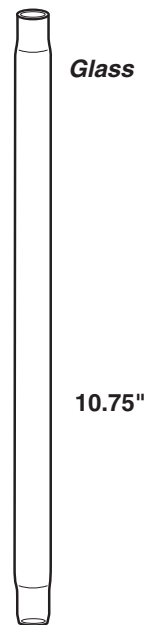
616-108
U-Shaped
Combustion
Tube



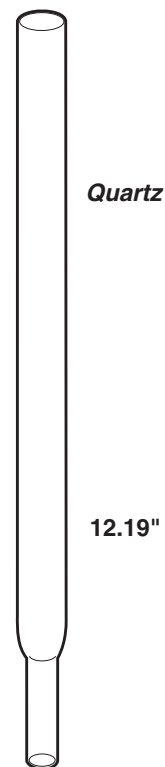
619-065
U-Shaped Combustion Tube
w/Flat Bottom
(TruSpec Only)



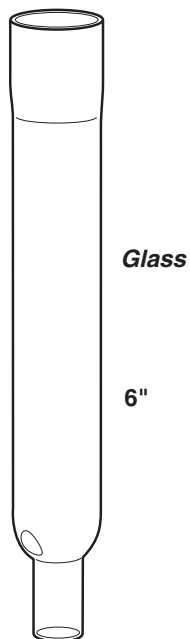
619-268
High Sensitivity
Reagent Tube
(TruSpec Only)



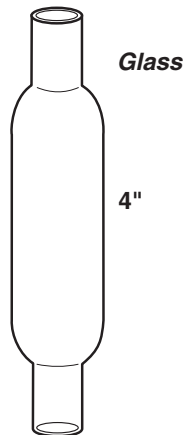
617-548
Reagent Tube
(TruSpec Only)



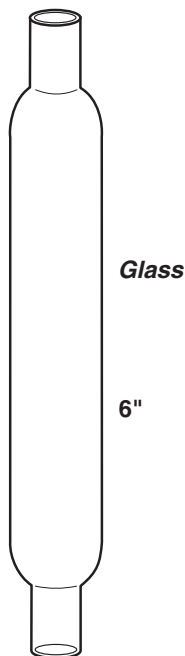
605-875
Reagent
Tube



601-390
Furnace Filter
Tube



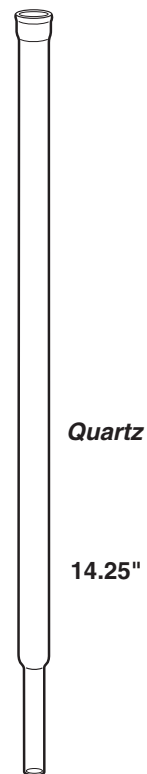
771-030
Bubble
Tube



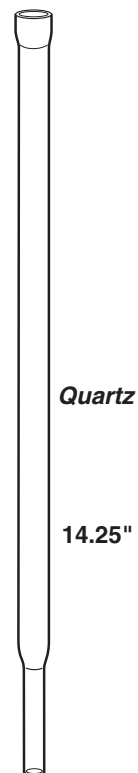
775-601
Reagent
Tube



776-279
Catalyst
Heater Tube



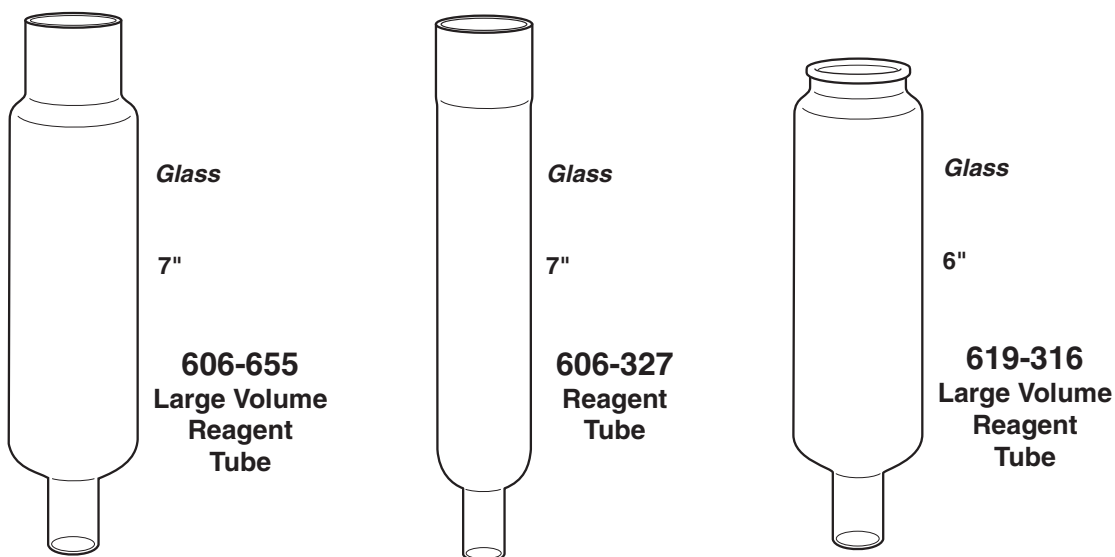
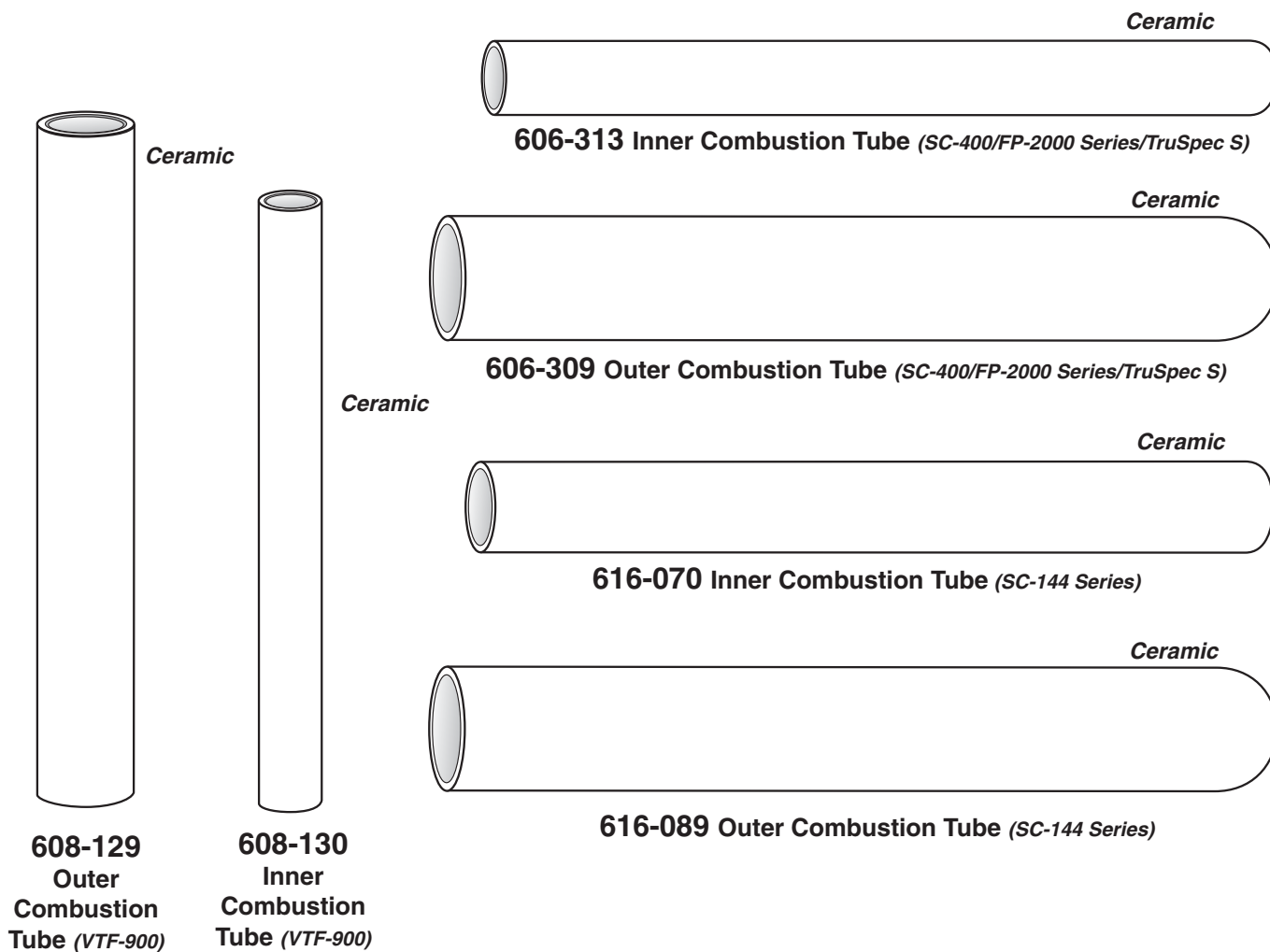
619-154
Catalyst
Heater Tube
(TruSpec Only)



601-437
Catalyst
Heater Tube

Combustion Tubes and Glassware

Most commonly used items represented.



Classification of Standards

When testing instrument performance, it is often suggested that people use regulated samples (Standards) that have known concentrations and levels of uncertainty. Elemental determinators are often calibrated and performance tested using one of the following various classification of standards.

NIST Standard Reference Materials (SRM)

These standards are issued through the U.S. government and are the benchmark for other CRM standards. Various lab accreditation bodies and analytical methodologies require the use of these standards or their equivalent.

Certified Reference Materials (CRM)

These standards are issued through specialized organizations, and have a status slightly below NIST Certified Reference Materials. These standards, however, may be used for certifications like ISO 17025 or when using ASTM methods.

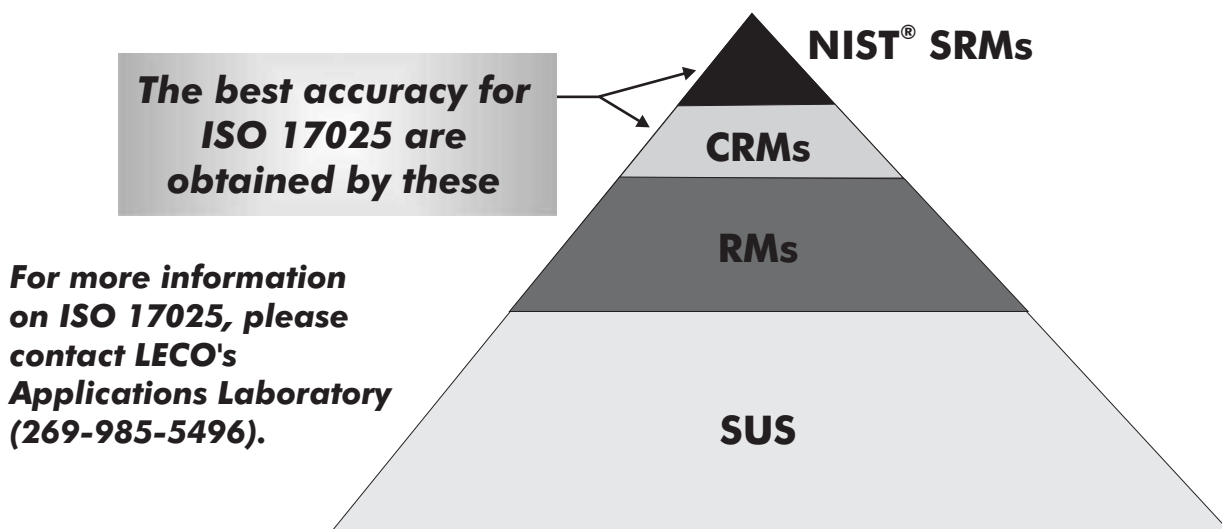
Reference Materials (RM)

These standards are issued through various organizations and are usually tested with a smaller pool of laboratories. They are usually traceable to NIST standards; however, they are not acceptable standards for ISO 17025 or when using ASTM Methods.

Set-up Standards (SUS)

These standards are generated by a supplier or company for a company-specific application/protocol. Set-up standards are commonly used as drift standards for day-to-day operation. They are not acceptable for ISO 17025 or when using ASTM Methods.

Pick a standard classification that suits your budget and certification requirements!



Standards

Numbers listed represent an average from multiple lots or an expected range for a particular lot's average. Call 800-292-6141 for exact chemistry and availability.

Set-Up Standards

| Part No. | Description | % C | % H | % N | % O | % S | BTU/lb. | Contents |
|-------------|----------------------|-------------|-----------|-------------------|-------|-----------|---------|-------------------|
| 501-034 | Calcium Carbonate | 12.0 | — | — | — | — | — | 50 g |
| 501-046 | Sucrose | 42.10 | 6.48 | — | — | — | — | 20 g |
| 501-048 | Potassium Biphtalate | 47.05 | 2.47 | — | — | — | — | 20 g |
| 501-053 | Acetanalide | 71.09 | 6.71 | 10.36 | 11.84 | — | — | 10 g |
| 501-439 | Paraffin Oil | 85.0–87.0 | 13.0–14.0 | <0.03 | — | — | 19750 | 4 oz./118 ml |
| 501-441 | Sucrose | 42.10 | 6.48 | — | — | — | — | 50 g |
| 501-561 | Soy Flour | — | — | 8.0–10.0 | — | — | — | 250 g |
| 501-563 | Corn Flour | — | — | 0.8–1.6 | — | — | — | 250 g |
| 502-029 | Synthetic Carbon | 0.90–1.10 | — | — | — | — | — | 50 g |
| 502-030 | Synthetic Carbon | 4.90–5.10 | — | — | — | — | — | 50 g |
| 502-055 | Orchard Leaves | 44.0–52.0 | 5.7–6.5 | 2.0–2.8 | — | 0.15–0.25 | — | 20 g |
| 502-062 | Soil | 0.75–1.25 | — | — | — | — | — | 65 g |
| 502-082 | Tobacco Leaves | 35.0–47.0 | 4.0–7.0 | 2.0–4.0 | — | 0.3–0.8 | — | 20 g |
| 502-083 | Heavy Fuel Oil | 88.0–92.0 | 8.0–12.0 | <2.0 | — | — | 18000 | 4 oz./118 ml |
| 502-092 | EDTA | 40.80–41.20 | 5.46–5.54 | 9.52–9.60 | — | — | — | 50 g |
| 502-092-250 | EDTA | 40.80–41.20 | 5.46–5.54 | 9.52–9.60 | — | — | — | 250 g |
| 502-101 | Durene | 89.49 | 10.51 | — | — | — | — | 10 g |
| 502-134 | Benzoic Acid | 68.85 | 4.92 | — | 26.23 | — | 11373 | (10) 1.45 g tblt. |
| 502-203 | Stearic Acid | 76.00 | 12.76 | — | — | — | — | 5 g |
| 502-204 | Dinitrobenzoic Acid | 40.39 | 1.92 | 11.54 | 46.15 | — | — | 5 g |
| 502-205 | Caffeine | 49.48 | 5.15 | 28.87 | 16.50 | — | — | 5 g |
| 502-207 | Cystine | 29.99 | 5.03 | 11.65 | 26.65 | 26.68 | — | 5 g |
| 502-209 | Sulfamethazine | 51.78 | 5.07 | 20.13 | 11.50 | 11.52 | — | 5 g |
| 502-211 | Glycine | 32.00 | 6.67 | 18.66 | 42.67 | — | — | 50 g |
| 502-272 | Corn Gluten | 51.0–53.0 | 7.0–7.5 | 11.0–12.0 | — | 0.75–1.0 | — | 50 g |
| 502-273 | Alfalfa | 45.0–47.0 | 5.5–6.5 | 2.5–5.0 | — | 0.25–0.35 | — | 50 g |
| 502-274 | Wheat Flour | 44.0–46.0 | 6.0–7.0 | 2.5–3.5 | — | 0.15–0.25 | — | 50 g |
| 502-275 | Rye Flour | 43.5–45.5 | 6.0–7.0 | 1.5–2.5 | — | 0.10–0.20 | — | 50 g |
| 502-276 | Oat Meal | 45.0–47.0 | 6.0–7.0 | 2.5–3.5 | — | 0.15–0.25 | — | 50 g |
| 502-277 | Barley | 45.0–47.0 | 6.0–7.0 | 1.0–3.0 | — | 0.10–0.20 | — | 50 g |
| 502-278 | Rice Flour | 43.0–45.0 | 6.0–7.0 | 1.0–3.0 | — | 0.10–0.20 | — | 50 g |
| 502-298 | Sulfamethazine | 51.78 | 5.07 | 20.13 | 11.5 | 11.52 | — | 25 g |
| 502-308 | Soil | 2.5–3.5 | — | — | — | — | — | 65 g |
| 502-309 | Soil | 10.0–14.0 | — | — | — | — | — | 65 g |
| 502-601 | Nitrogen (Liquid) | — | — | 0.0100% (100 ppm) | — | — | — | 10 ml vial |
| 502-602 | Nitrogen (Liquid) | — | — | 0.1% (1000 ppm) | — | — | — | 10 ml Vial |
| 774-208 | Benzoic Acid | 68.85 | 4.92 | — | 26.23 | — | 11373 | (10) 1 g tblt. |

Reference Materials

| Part No. | Description | % Sulfur | Contents |
|----------|-------------|----------|----------|
| 502-433 | Coal | 0.25 | 50 g |
| 502-434 | Coal | 0.75 | 50 g |
| 502-435 | Coal | 1.0 | 50 g |
| 502-436 | Coal | 1.5 | 50 g |
| 502-437 | Coal | 3.0 | 50 g |
| 502-438 | Coal | 5.0 | 50 g |

| Part No. | Description | % Sulfur | % Volatile | % Ash | % C | % H | % N | BTU/lb.* | Contents |
|----------|---------------------|----------|------------|-------|------|------|------|----------|----------|
| 502-442 | Coal Prox Plus Low | 0.75 | 36 | 7.2 | 75.3 | 4.9 | 1.1 | 12815 | 50 g |
| 502-443 | Coal Prox Plus Med. | 1.0 | 43.5 | 9.7 | 69.4 | 5.1 | 1.1 | 11911 | 50 g |
| 502-444 | Coal Prox Plus High | 2.0 | 37.2 | 7.4 | 78.7 | 5.4 | 1.48 | 14025 | 50 g |
| 502-452 | Coke Prox Plus | 1.19 | 11.7 | 0.37 | 93.3 | 3.94 | 1.43 | 15733 | 50 g |

*for information purposes only

Standards

Numbers listed represent an average from multiple lots or an expected range for a particular lot's average. Call 800-292-6141 for exact chemistry and availability.

ARMI Certified Reference Materials

| Part Number | Description | Contents |
|--------------------|-------------------------------------|-----------------|
| 502-383 | Coal CRM Sulfur ~0.25% | 50 g (1.75 oz.) |
| 502-384 | Coal CRM Sulfur ~0.75% | 50 g (1.75 oz.) |
| 502-385 | Coal CRM Sulfur ~1% | 50 g (1.75 oz.) |
| 502-386 | Coal CRM Sulfur ~1.5% | 50 g (1.75 oz.) |
| 502-387 | Coal CRM Sulfur ~3% | 50 g (1.75 oz.) |
| 502-388 | Coal CRM Sulfur ~5% | 50 g (1.75 oz.) |
| 502-389 | Residual Fuel Oil CRM Sulfur ~0.1% | 118 ml (4 oz.) |
| 502-390 | Residual Fuel Oil CRM Sulfur ~0.5% | 118 ml (4 oz.) |
| 502-391 | Residual Fuel Oil CRM Sulfur ~1% | 118 ml (4 oz.) |
| 502-392 | Residual Fuel Oil CRM Sulfur ~2% | 118 ml (4 oz.) |
| 502-393 | Residual Fuel Oil CRM Sulfur ~3% | 118 ml (4 oz.) |
| 502-394 | Residual Fuel Oil CRM Sulfur ~4.5% | 118 ml (4 oz.) |
| 502-417 | White Mineral Oil CRM Sulfur ~0.01% | 118 ml (4 oz.) |
| 502-418 | White Mineral Oil CRM Sulfur ~0.05% | 118 ml (4 oz.) |
| 502-419 | White Mineral Oil CRM Sulfur ~0.10% | 118 ml (4 oz.) |
| 502-420 | White Mineral Oil CRM Sulfur ~0.50% | 118 ml (4 oz.) |
| 502-421 | White Mineral Oil CRM Sulfur ~1% | 118 ml (4 oz.) |
| 502-422 | White Mineral Oil CRM Sulfur ~2% | 118 ml (4 oz.) |
| 502-423 | White Mineral Oil CRM Sulfur ~3% | 118 ml (4 oz.) |
| 502-424 | #2 Diesel Fuels CRM Sulfur ~0.01% | 118 ml (4 oz.) |
| 502-425 | #2 Diesel Fuels CRM Sulfur ~0.03% | 118 ml (4 oz.) |
| 502-426 | #2 Diesel Fuels CRM Sulfur ~0.05% | 118 ml (4 oz.) |
| 502-427 | #2 Diesel Fuels CRM Sulfur ~0.10% | 118 ml (4 oz.) |
| 502-428 | #2 Diesel Fuels CRM Sulfur ~0.50% | 118 ml (4 oz.) |
| 502-429 | #2 Diesel Fuels CRM Sulfur ~1.0% | 118 ml (4 oz.) |
| 502-430 | #2 Diesel Fuels CRM Sulfur ~2.0% | 118 ml (4 oz.) |
| 502-431 | #2 Diesel Fuels CRM Sulfur ~3.0% | 118 ml (4 oz.) |
| 502-432 | #2 Diesel Fuels CRM Sulfur ~4.5% | 118 ml (4 oz.) |

NIST® Standard Reference Materials

| Part Number | Description | Contents |
|--------------------|--|-----------------|
| 502-405 | 1632 Coal Mercury ~0.09 ppm & Sulfur ~1.46 ppm | 50 g |
| 502-406 | 1633 Coal Fly Ash Mercury ~0.14 ppm | 50 g |
| 502-407 | 2709 Soil Mercury ~1.4 ppm | 50 g |
| 502-408 | 2710 Soil Mercury ~32.6 ppm | 50 g |
| 502-409 | 2711 Soil Mercury ~6.2 ppm | 50 g |

Miscellaneous Operating Accessories

Refer to pages 24 and 25 for a visual reference of the miscellaneous operating accessories.

Carbon/Hydrogen/Nitrogen/Sulfur/ Oxygen Determinators

| | |
|---------|-------------------------------|
| 501-241 | Silicone Grease |
| 501-614 | Spatula |
| 502-023 | Funnel |
| 502-028 | Tweezers, Straight |
| 502-051 | Tweezers, Curved |
| 502-213 | Leak Detection Solution |
| 601-483 | Printer Paper |
| 601-484 | Printer Ribbon |
| 601-964 | Crimping Pliers |
| 601-982 | Spatula |
| 604-373 | Small Sample Cup Holder |
| 604-378 | Tweezers, Curved |
| 604-398 | Large Sample Cup Holder |
| 604-492 | Quick Sampler |
| 604-493 | Cap Holder |
| 604-538 | 15-Micron Filter |
| 606-114 | Crucible Extractor |
| 608-135 | Pyrolysis Tube Extractor Tool |
| 616-310 | Vacuum Cleaner Attachment |
| 775-306 | 10 mm Screen Filter |
| 775-307 | Filter Tool |
| 778-321 | Lance Extractor Tool |
| 778-405 | Sample Storage Block |

Mercury Analyzers

| | |
|-------------|---------------------|
| 614-822-107 | Joint Tube |
| 614-822-108 | Amalgamator Gasket |
| 614-822-109 | Output Tube |
| 614-822-110 | Amalgamator |
| 614-822-121 | Amalgamator Coil |
| 614-822-129 | Oxygen Needle Valve |
| 614-822-190 | Mercury Lamp |

Nitrogen/Protein Determinators

| | |
|-------------|--|
| 501-062 | Boat Puller Assembly (Manual) |
| 501-241 | Silicone Grease |
| 501-614 | Spatula |
| 502-005 | Brush |
| 502-007 | Tube Cleaner |
| 502-023 | Funnel |
| 502-028 | Tweezers, Straight |
| 502-213 | Leak Detection Solution |
| 502-337 | Bottle (72/pkg) |
| 502-476 | 10 ml Vials for DI-PAL Liquid Autosampler/TruSpec (100/pkg) |
| 502-477 | Screw Tops for 502-476 Vials |
| 503-032 | Regular Glass Scoop |
| 601-483 | Printer Paper |
| 601-484 | Printer Ribbon |
| 601-490-110 | Sample Foiler Kit |
| 601-981 | Wire Brush |
| 603-350 | O-ring Installation Tool |
| 604-373 | Small Sample Cup Holder |
| 604-378 | Tweezers, Curved |
| 604-398 | Large Sample Cup Holder |
| 604-485-110 | Leak Tester Kit |
| 604-492 | Quick Sampler Kit |
| 604-493 | Cap Holder |
| 606-224 | Thermocouple |
| 606-319 | Braided Cable |
| 606-320 | Clamps |
| 606-403 | Adapter Brush |
| 606-560 | Hot Plate Tray |
| 606-563 | Hot Plate Tray Liner |
| 606-601 | Heating Element Set (1 set of 4) |
| 609-170-110 | Gel Cap Sample Dispenser Includes: 502-338 Small Gel Cap (400) 604-373 Small Sample Cup Holder for Balance 611-255 Plunger Assembly 609-172-020 Replacement Tubes (20) |

continued on next page

Miscellaneous Operating Accessories

Refer to pages 24 and 25 for a visual reference of the miscellaneous operating accessories.

Nitrogen/Protein Determinators (continued)

| | |
|---------|--|
| 613-563 | Braided Cables (short strap) |
| 613-564 | Expansion Tool for Braided Cables |
| 616-152 | Crucible Extractor Tool |
| 762-515 | O-ring Removal Tool |
| 768-980 | Balston Filter |
| 775-306 | Secondary Filter |
| 775-307 | Filter Tool |
| 778-405 | 10-Sample Storage Block |
| 801-076 | Duckbill Check Valve for DI-PAL Liquid Autosampler/TruSpec |

Proximate/Thermogravimetric Analyzers

| | |
|---------|-------------------------------|
| 502-335 | Crucible Foil Liner (500/pkg) |
| 601-483 | Printer Paper |
| 601-484 | Printer Ribbon |
| 605-980 | Keyboard 101 Key AT/XT |
| 609-785 | Keyboard 101 Key PS/2 |
| 614-443 | Large Crucible Turntable |
| 614-445 | Small Crucible Turntable |
| 701-162 | Deskjet Cartridge |
| 761-929 | Crucible Tongs |
| 776-978 | Glass Scoop |

Miscellaneous Operating Accessories

Refer to pages 24 and 25 for a visual reference of the miscellaneous operating accessories.

Sulfur/Carbon Determinators

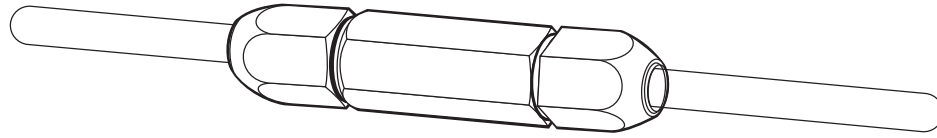
| | |
|---------|---|
| 175-590 | Diaphragm and Flapper Valve Kit |
| 501-062 | Boat Puller |
| 501-241 | Silicone Grease |
| 501-614 | Spatula |
| 502-023 | Funnel |
| 503-032 | Glass Scoop |
| 601-483 | Printer Paper |
| 601-484 | Printer Ribbon |
| 606-224 | Thermocouple |
| 606-316 | Outlet Port Adapter |
| 606-319 | Cable, Wire Braid |
| 606-320 | Clamps |
| 606-352 | Autoloader Boat Rack |
| 606-403 | Adapter Brush |
| 606-547 | Boat Pull for Autoloader |
| 606-601 | Heating Element Set for SC-400 Series, CR-412, SC-144DR, S-144DR, C-144 (1 set of 4) |
| 613-563 | Braided Cables (short strap) |
| 613-564 | Expansion Tool for Braided Cables |
| 616-012 | Front Flange |
| 616-013 | Compress Flange |
| 616-063 | Boat Puller |
| 761-929 | Crucible Tongs |
| 764-078 | One-Gram Weight |
| 768-980 | Balston Filter |
| 770-764 | Paper Roll |
| 770-778 | Printer Ribbon |
| 772-617 | Alumina and 772-618 Rigidizers needed for replacing elements |
| 775-859 | Cleaning Brush |
| 776-978 | Large Glass Scoop |
| 777-073 | Thermocouple Assembly |
| 783-030 | Lower Disconnect Fitting Replacement Kit Includes: Two (2) 783-031 Lower Disconnect Fittings One (1) 783-032 Upper Disconnect Fitting for Left Tube |

Total Fat Determinators

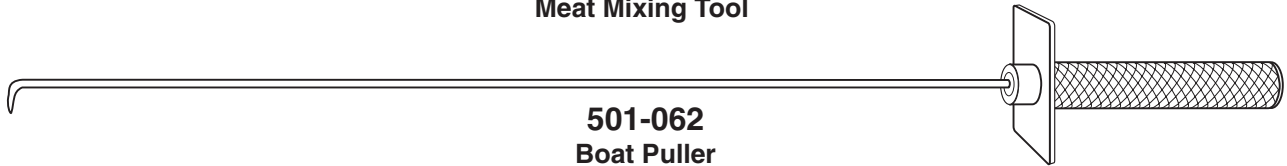
| | |
|-------------|-----------------------------------|
| 501-081 | Glass Wool |
| 501-439 | Paraffin Sample |
| 502-213 | Leak Detection Solution |
| 502-327 | LECO-Dry |
| 502-329 | Vial (72/pkg) |
| 602-460 | Thimble End Cap Frit |
| 602-463 | Thimble End Cap |
| 602-466 | Thimble Radial Seal (cap) |
| 602-467 | Funnel |
| 602-483 | Peek Cap (thimble end cap insert) |
| 602-485 | Thimble Cap Assembly (6/pkg) |
| 611-277 | Thimble Cap, Dummy |
| 611-538 | HVR Wafers |
| 611-539 | HVR Assembly |
| 611-545 | HVR Body |
| 611-553 | HVR Needle Pins |
| 611-555 | Thimble Body (3/pkg) |
| 611-715-101 | Pump Check Valve Replacement Kit |
| 611-715-102 | Pump Seal |
| 611-725 | HVR Actuation Pin |
| 611-815 | Tray Assembly Rack |
| 611-842 | Beaker |
| 611-843 | Scoop, Metal |
| 611-844 | Spoon, SST |
| 611-864 | Wrench (for SST tubing) |
| 611-890 | Sample Rack (thimble holder) |
| 611-898 | Brush (modified) |
| 611-963 | HVR Plug |
| 611-984-101 | Pump Piston (sapphire) |
| 620-950 | Meat Mixing Tool |
| 776-978 | Scoop, Glass |

Miscellaneous Operating Accessories

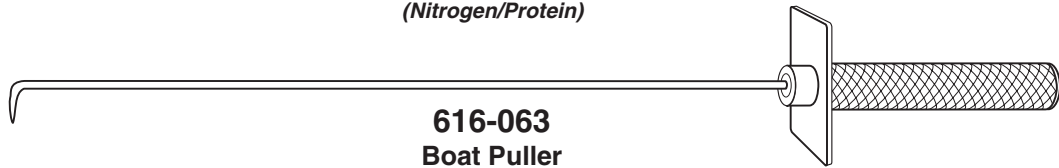
Most commonly used items represented.



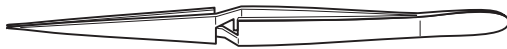
620-950
Meat Mixing Tool



501-062
Boat Puller
(Nitrogen/Protein)



616-063
Boat Puller
(Sulfur/Carbon)



502-028
Straight Tweezers



503-032
Glass Scoop



502-051
Curved Tweezers



501-614
Spatula



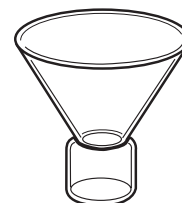
604-378
Curved Tweezers



601-982
Spatula



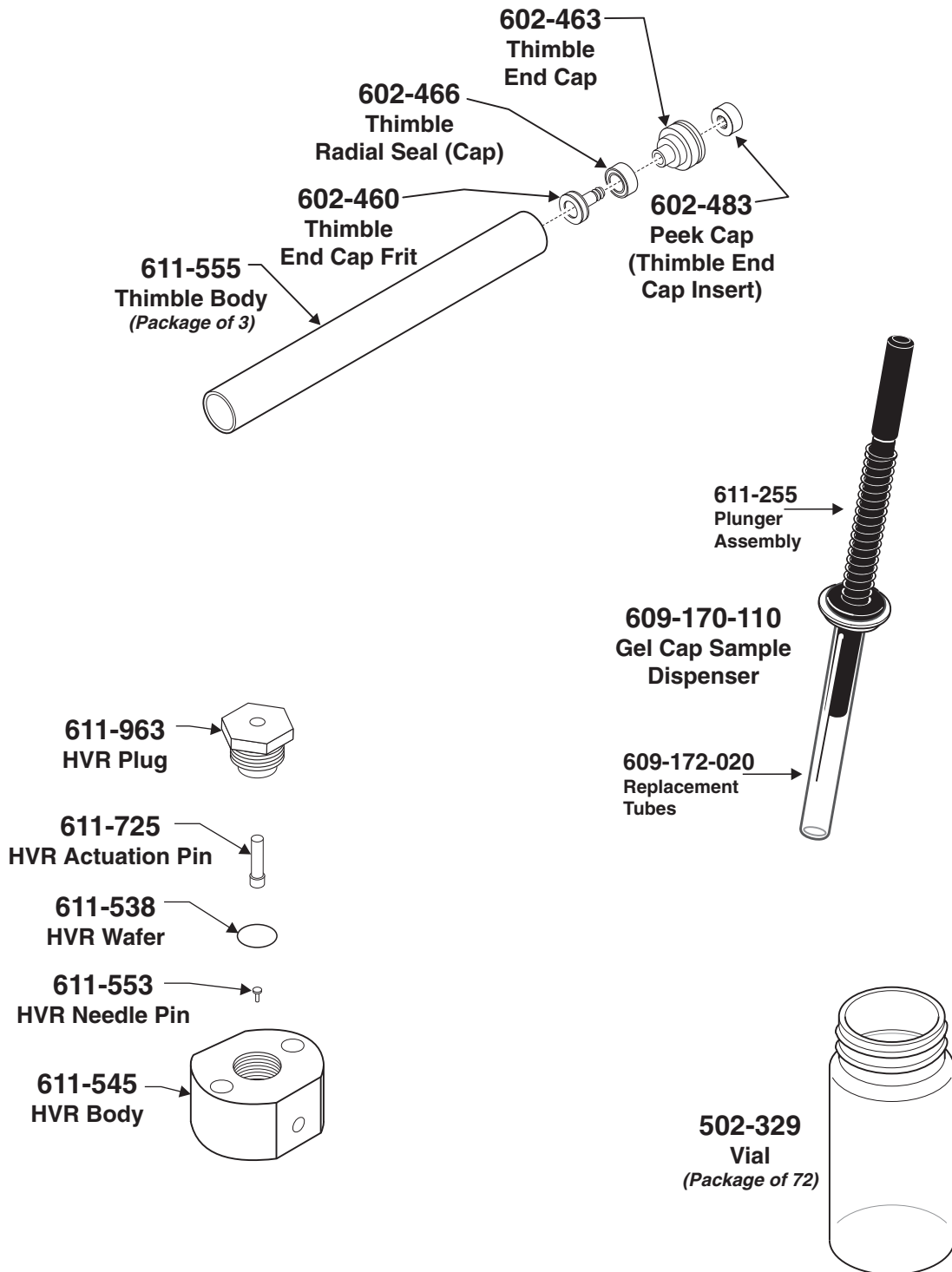
761-929
Crucible Tongs



502-023
Funnel

Miscellaneous Operating Accessories

Most commonly used items represented.



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| Instrument | Part No. |
|---|-----------------|
| AMA254 Mercury Analyzer (1 visit) | 104-111 |
| FP-528 Nitrogen/Protein Determinator (1 visit) | 104-101 |
| FP/CNS-2000 Carbon/Nitrogen/Sulfur Determinator (1 visit) | 104-102 |
| SC-432/444 Sulfur/Carbon Determinator (1 visit) | 104-103 |
| SC-144DR Sulfur/Carbon Determinator (1 visit) | 104-110 |
| TFE2000 Total Fat/Oil Determinator (1 visit) | 104-104 |
| TruSpec® Series of Elemental Determinators (1 visit) | 104-112 |
| C/S/CS-200, 300, 400 Carbon/Sulfur Determinator (1 visit) | 104-109 |
| CS/CSHS600 Carbon/Sulfur Determinator (1 visit) | 104-118 |
| C/SDR600 Carbon/Sulfur Determinator (1 visit) | 104-119 |
| RO500/600 Oxygen Determinator (1 visit) | 104-115 |
| ROH600/TCH600 Oxygen/Hydrogen Determinator (1 visit) | 104-116 |
| S/SHS600 Sulfur Determinator (1 visit) | 104-117 |
| TN500/600 Nitrogen Determinator (1 visit) | 104-114 |
| TC600-Series Nitrogen/Oxygen Determinator (1 visit) | 104-113 |

For the latest instrument information including application notes, kits & bulletins, reference cards, and consumables go to www.leco.com

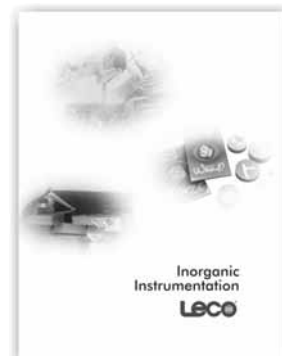
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- Carbon/Sulfur Determinators
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- Hydrogen Determinators
- Glow Discharge Spectrometers



Metallographic/Optical *(for more information, request form no. 203-927)*

- Sample Preparation Equipment
- Image Analysis Systems
- Image Management
- Hardness Testing Systems
- Video Accessories



Organics *(for more information, request form no. 203-102)*

- Carbon/Hydrogen/Nitrogen/Sulfur
- Sulfur/Carbon
- Nitrogen/Protein
- Fat
- Moisture/Ash
- Calorimetry
- Mercury



Mass Spectrometry (Separation Science)

- GC-TOFMS Systems *(for more information, request form no. 203-990)*
- GCxGC-TOFMS Systems *(for more information, request form no. 209-161)*
- GCxGC-FID/ECD Systems *(for more information, request form no. 209-157)*
- LC-TOFMS Systems *(for more information, request form no. 209-148)*



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