



DWK Life Sciences

KIMBLE® VOLUMETRIC GLASSWARE



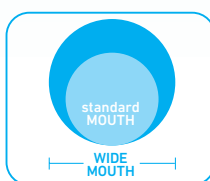
DURAN
WHEATON
KIMBLE
Excellence in your hands

KIMBLE® VOLUMETRIC GLASSWARE

KIMBLE® KIMAX®, the world's most trusted brand name in Volumetric Glassware provides uncompromised precision through expertise in design and manufacturing, selection and use of only the highest quality raw materials and the utilization of the latest calibration technology and methods. Teaching labs to regulated labs depend on our brands to deliver consistent accuracy, durability, purity and safety. Our long-standing participation with ASTM International underscores our commitment to advance the art and science of volumetric performance. 'Thank You' for trusting our brands!

◆ A Tol ± 0.006

| DWK DELIVERS | |
|--------------|---|
| 125 | Years of manufacturing expertise |
| TRUST | KIMBLE® KIMAX® — most trusted brand names for accuracy and precision |
| QUALITY | ISO 9001:2015 and ISO 17025:2017 Manufacturing Facilities |
| 700 | Over 700 Volumetric Products |
| ASTM | Sub-Committee Member Products meet or exceed ASTM requirements |
| HDWM | Designed First Heavy Duty Wide Mouth Flask in collaboration with ASTM |
| SAFETY | Kim-Cote Safety Coatings for a safer workplace |



Customer-DWK-ASTM Collaboration Brings the World an Innovative Flask

A result of joint cooperation with our customers and ASTM, our Heavy Duty Wide-Mouth innovative flask design improves pipette access and speeds your work - especially for serial dilutions. Additionally, a heavier, thick-walled design offers superior strength, durability and safety. Great partnerships produce great products and the next innovation is already in the works!



Meet Your Regulatory Requirements with Certification & Serialization

Whether an internal SOP or regulatory requirement, our Certifications and Serialization options help you best manage your volumetric assets to ensure conformance, track calibrations and optimize glassware replacement cycles for a safer lab.

Why our Pipet Design Delivers Better Results

Unique optimal fluidic design provides consistent high recovery of your concentrated samples. Additionally, our carefully engineered packaging helps prevent loss of calibration and damage during shipment. Pair our pipets with a Heavy-Duty Wide Mouth volumetric flask and your workflow is optimized to deliver precise, accurate and reproducible results.



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Importance of ASTM

The American Society for Testing and Materials (ASTM) is the international governing body which defines standards for the design, manufacture, calibration and quality of all laboratory glassware. DWK Life Sciences is committed to upholding and improving safety and quality standards for our industry through active participation on the ASTM subcommittee for laboratory glassware standards. Our ongoing ASTM participation helps to ensure we continue to deliver the quality, precision and trust that customers expect.

We offer four tiers volumetric glassware, defined by ASTM accuracy limits:

- **Tier 1: Class A (Batch Certified or Individually Certified)**
- **Tier 2: Class A**
- **Tier 3: Class B**
- **Tier 4: Economy/ValueWare®**

| Class A vs. Class B | ASTM Tolerance | | |
|--------------------------|----------------|-------|-------|
| | Spec | A | B |
| Volumetric Flask 50mL | E288 | ±0.05 | ±0.10 |
| Volumetric Flask 50mL WM | E288 | ±0.08 | ±0.16 |
| Volumetric Pipet 5mL | E969 | ±0.01 | ±0.02 |
| Graduated Pipet 5mL | E1293 | ±0.02 | ±0.04 |
| Measuring Cylinder 50mL | E1272 | ±0.25 | ±0.50 |

Table 1. Comparison of Class A vs. Class B tolerances

Why Class Type Matters

The major difference between Class A (Tier 1&2) and Class B (Tier 3) glassware is that ASTM glassware specifications require that Class A tolerances are twice as tight compared to Class B (*note Table 1*). The tolerance number stated defines the maximum permissible error limits at the upper (+) and lower (-) range of the intended capacity. Depending on the application and/or method, incorrect delivery of precise and accurate volumes will directly influence the relative standard deviation data and % error limits. Inherently, data error may lead to immediate failure of the SOP conformance requirements, due to compromised delivery of accurate and reproducible volumes.

Tier 1

Class A Serialized and Certified (Tier 1) glassware are key for applications requiring the tightest tolerances, traceability and highest confidence in results. Individual as well as batch Certified & Serialized versions come with certificates which contain matching serial numbers printed on the glassware and date of test or manufacture. Serialized glassware allows tracking, use, application or lab assigning and precise Life Cycle Management per your SOP requirements. Choose from several offerings which are calibrated with National Institute of Standards and Technology (NIST) and Centro Nacional de Metrología (CENAM) certified standards and balances to ensure calibration accuracy. NIST and CENAM both supply calibration standards for measuring equipment and procedures, quality control benchmarks and experimental control samples.

NIST
Calibrated

CENAM
Calibrated

Tier 2

Same ASTM Class A tolerance. Batch certified (Pipets only). No serialization.

Tier 3

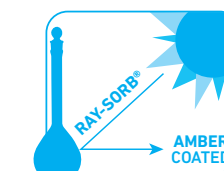
Class B ASTM tolerances. Batch certified (Pipets only). No serialization.

Tier 4

Economy/ValueWare® products feature a range of economical options and most manufactured to ASTM standards. Though this tier offers a limited selection the quality is not compromised.

Application Features & Key Solutions

To protect light-sensitive contents, our proprietary and permanent RAY-SORB® glass treatment offers the very best defense against the oxidizing effects of light exposure.
(For additional information on transmittance wavelengths, refer to p.28)



The clear, durable KimCote® protective coating withstands routine laboratory washing, handling, and improves grip. KimCote® Volumetric Flasks contain spills while reducing the hazard risk within the laboratory environment.

(Learn more about the benefits of KimCote®, and our Glassware Safety Training Program on p. 31)



Tracking glassware for specific methods, lab areas or cGLP can be challenging and color-coded glassware often helps with this need. Our Colorware glassware can be used to distinguish glassware replacement cycles, glassware dedicated to specific lab areas or methods, isolate chemical cross-contamination or use, identify experiments and projects.



PRODUCT OFFERING OVERVIEW

| | Class A, Serialized and Certified | Class A | Class B | Economy/ValueWare® |
|-----------------------------------|--|--|--|--|
| Tolerance req. meet ASTM Standard | ALL | ALL | ALL | SOME |
| Certificate of Accuracy | ✓ | | ONLY PIPETS | |
| Certificate of Calibration | ✓ | | | |
| Heavy Duty Wide Mouth | ✓ | ✓ | | |
| Batch Certified | ✓ | ONLY PIPETS | ONLY PIPETS | |
| Individually Serialized | ✓ | | | |
| KimCote® Safety Coating | | ✓ | | |
| RAY-SORB® Amber | | ✓ | | |
| Colorware | | ✓ | | |
| Stopper styles | GLASS STOPPER SNAP CAPS POLYETHYLENE PTFE | GLASS STOPPER SNAP CAPS POLYETHYLENE PTFE | GLASS STOPPER SNAP CAPS POLYETHYLENE | GLASS STOPPER SNAP CAPS POLYETHYLENE |

CLOSURES & CUSTOM OPTIONS

Closures & Accessories

- Glass stoppers
- Polyethylene stoppers
- Color coded PTFE stoppers
- Polyethylene snap caps
- Screw caps
- KIMBLE® Silicone Lids (cylinders)
- PTFE and glass stopcocks



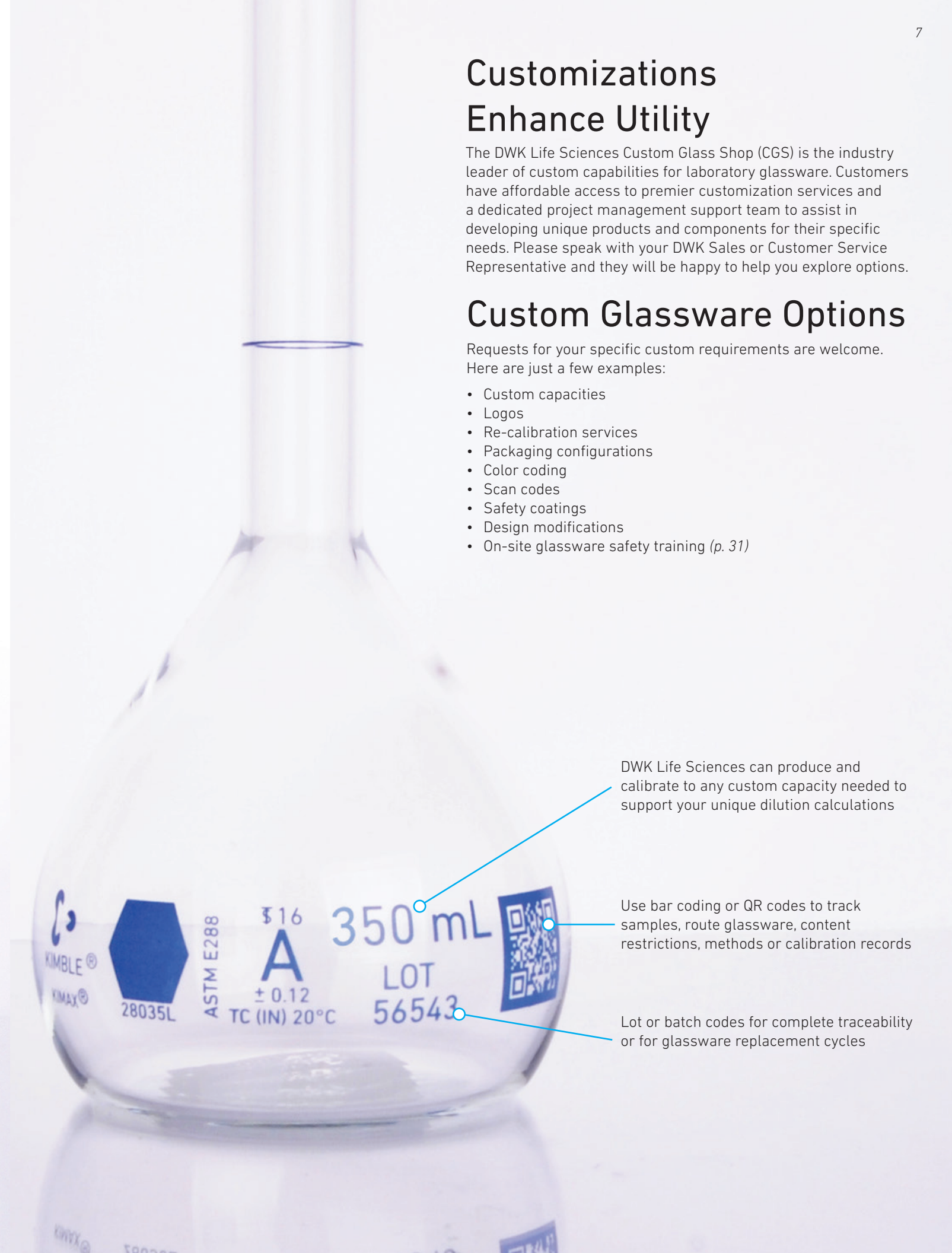
Customizations Enhance Utility

The DWK Life Sciences Custom Glass Shop (CGS) is the industry leader of custom capabilities for laboratory glassware. Customers have affordable access to premier customization services and a dedicated project management support team to assist in developing unique products and components for their specific needs. Please speak with your DWK Sales or Customer Service Representative and they will be happy to help you explore options.

Custom Glassware Options

Requests for your specific custom requirements are welcome. Here are just a few examples:

- Custom capacities
- Logos
- Re-calibration services
- Packaging configurations
- Color coding
- Scan codes
- Safety coatings
- Design modifications
- On-site glassware safety training (p. 31)



DWK Life Sciences can produce and calibrate to any custom capacity needed to support your unique dilution calculations

Use bar coding or QR codes to track samples, route glassware, content restrictions, methods or calibration records

Lot or batch codes for complete traceability or for glassware replacement cycles

CLASS A, SERIALIZED & CERTIFIED

01



FLASKS

KIMAX® flask is permanently marked with an individual serial number and is supplied with a Certificate of Graduation Accuracy.

- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Graduated to Class A volumetric tolerances



| Cat. No. | Tolerance (mL) | Capacity (mL) | Stopper Size | Height Including Stopper (mm) | Case Qty |
|-------------|----------------|---------------|--------------|-------------------------------|----------|
| 92820G-5 | ±0.08 | 5 | 13 | 97 | 6 |
| 92820G-10 | ±0.08 | 10 | 13 | 100 | 6 |
| 92820G-20 | ±0.08 | 20 | 13 | 130 | 6 |
| 92820G-25 | ±0.08 | 25 | 13 | 130 | 6 |
| 92820G-50 | ±0.08 | 50 | 13 | 150 | 6 |
| 92820G-100 | ±0.10 | 100 | 16 | 180 | 6 |
| 92820G-200 | ±0.20 | 200 | 19 | 223 | 6 |
| 92820G-250 | ±0.20 | 250 | 19 | 248 | 6 |
| 92820G-500 | ±0.20 | 500 | 19 | 283 | 6 |
| 92820G-1000 | ±0.30 | 1000 | 22 | 335 | 1 |
| 92820G-2000 | ±0.50 | 2000 | 27 | 395 | 1 |

Serialized and Certified volumetric flasks are designed for labs and experiments requiring a high level of volumetric accuracy, glass quality and traceability.

- Each flask is permanently marked with an individual serial number, calibrated to contain and delivered with a Certificate of Graduation Accuracy for added traceability required within regulated laboratory workflows
- All flasks included a marking spot for labeling
- The 500mL size (28012 series) is suitable for determination of specific gravity of fine aggregate (ASTM C128)
- 28012 and 28017 Series is designed from ASTM Specification E288, Class A serialized requirements

| Cat. No. | Tolerance (mL) | Capacity (mL) | Stopper/Closure Size | Height Including Stopper (mm) | Case Qty |
|--|----------------|---------------|----------------------|-------------------------------|----------|
| Glass Pennyhead Stopper and Wide Base | | | | | |
| 28017A-1 | ±0.010 | 1 | 8 | 94 | 6 |
| 28017A-2 | ±0.015 | 2 | 8 | 94 | 6 |
| 28017A-5 | ±0.020 | 5 | 8 | 99 | 6 |
| 28017A-10 | ±0.020 | 10 | 9 | 125 | 6 |
| 28017A-25 | ±0.030 | 25 | 9 | 153 | 6 |
| Snap Cap | | | | | |
| 28012-50 | ±0.05 | 50 | 3 | 130 | 12 |
| 28012-100 | ±0.08 | 100 | 4 | 160 | 12 |
| 28012-250 | ±0.12 | 250 | 5 | 225 | 12 |
| 28012-500 | ±0.20 | 500 | 5 | 260 | 12 |
| 28012-1000 | ±0.30 | 1000 | 6 | 310 | 6 |
| Glass Pennyhead Stopper | | | | | |
| 28017-10 | ±0.02 | 10 | 9 | 103 | 12 |
| 28017-25 | ±0.03 | 25 | 9 | 118 | 12 |
| 28017-50 | ±0.05 | 50 | 9 | 148 | 12 |
| 28017-100 | ±0.08 | 100 | 13 | 180 | 12 |
| 28017-200 | ±0.10 | 200 | 16 | 225 | 12 |
| 28017-250 | ±0.12 | 250 | 16 | 250 | 12 |
| 28017-500 | ±0.20 | 500 | 19 | 287 | 12 |
| 28017-1000 | ±0.30 | 1000 | 22 | 338 | 6 |
| 28017-2000 | ±0.50 | 2000 | 27 | 400 | 4 |



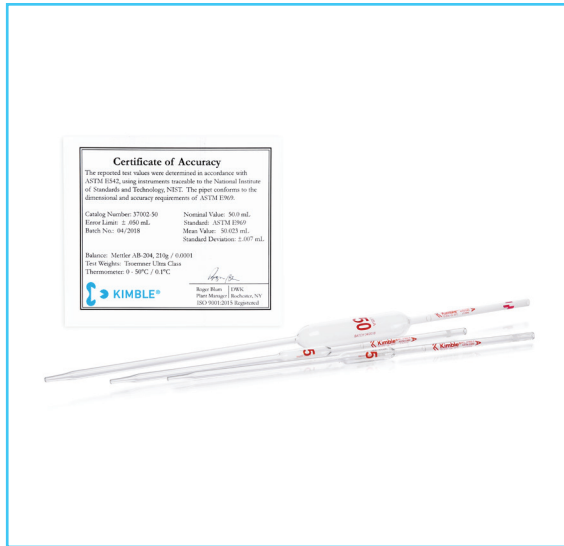
KIMBLE® KIMAX® Heavy Duty Wide Mouth Volumetric Flasks
Class A, Serialized and Certified, Glass Stopper



KIMBLE® KIMAX® Volumetric Flasks
Class A, Serialized and Certified



PIPETES



KIMBLE® KIMAX® Volumetric Pipets
Class A, Batch Certified and Serialized



Standard batch serialized and certified, volumetric pipets are available in two options: Markings for both TC and TD and TD only.

- Color coded
- Pipets are supplied with a Certificate of Accuracy tied to the batch number printed on the glass
- 37002 series only: 75mL size is designed from ASTM E542
- Designed and manufactured to ASTM E969 requirements

| Cat. No. | Tolerance (mL) | Capacity (mL) | Overall Length (mm) | Band Color Coding | Case Qty |
|----------------------------------|----------------|---------------|---------------------|-------------------|----------|
| To Deliver | | | | | |
| 37002-510 | ± 0.006 | 0.5 | 310 | 2 Black | 6 |
| 37002-1 | ± 0.006 | 1 | 310 | Blue | 6 |
| 37002-1510 | ± 0.006 | 1.5 | 335 | — | 6 |
| 37002-2 | ± 0.006 | 2 | 335 | Orange | 6 |
| 37002-2510 | ± 0.006 | 2.5 | 350 | — | 6 |
| 37002-3 | ± 0.01 | 3 | 350 | Black | 6 |
| 37002-4 | ± 0.01 | 4 | 350 | 2 Red | 6 |
| 37002-5 | ± 0.01 | 5 | 365 | White | 6 |
| 37002-6 | ± 0.01 | 6 | 375 | 2 Orange | 6 |
| 37002-7 | ± 0.01 | 7 | 400 | 2 Green | 6 |
| 37002-7510 | ± 0.006 | 7.5 | 350 | — | 6 |
| 37002-8 | ± 0.01 | 8 | 400 | Blue | 6 |
| 37002-9 | ± 0.02 | 9 | 400 | Black | 6 |
| 37002-10 | ± 0.02 | 10 | 400 | Red | 6 |
| 37002-12 | ± 0.02 | 12 | 460 | — | 3 |
| 37002-12510 | ± 0.006 | 12.5 | 350 | — | 3 |
| 37002-15 | ± 0.03 | 15 | 455 | Green | 3 |
| 37002-20 | ± 0.03 | 20 | 505 | Yellow | 3 |
| 37002-25 | ± 0.03 | 25 | 505 | Blue | 3 |
| 37002-30 | ± 0.03 | 30 | 525 | Black | 3 |
| 37002-40 | ± 0.05 | 40 | 525 | White | 3 |
| 37002-50 | ± 0.05 | 50 | 545 | Red | 3 |
| 37002-75 | ± 0.05 | 75 | 515 | Green | 3 |
| 37002-100 | ± 0.08 | 100 | 550 | Yellow | 3 |
| To Contain and To Deliver | | | | | |
| 37003-1 | ± 0.006 | 1 | 310 | Blue | 6 |
| 37003-2 | ± 0.006 | 2 | 335 | Orange | 6 |
| 37003-3 | ± 0.01 | 3 | 350 | Black | 6 |
| 37003-4 | ± 0.01 | 4 | 350 | 2 Red | 6 |
| 37003-5 | ± 0.01 | 5 | 365 | White | 6 |
| 37003-6 | ± 0.01 | 6 | 375 | 2 Orange | 6 |
| 37003-7 | ± 0.01 | 7 | 400 | 2 Green | 6 |
| 37003-8 | ± 0.02 | 8 | 400 | Blue | 6 |
| 37003-9 | ± 0.02 | 9 | 400 | Black | 6 |
| 37003-10 | ± 0.02 | 10 | 400 | Red | 6 |
| 37003-15 | ± 0.03 | 15 | 455 | Green | 3 |
| 37003-20 | ± 0.03 | 20 | 505 | Yellow | 3 |
| 37003-25 | ± 0.03 | 25 | 505 | Blue | 3 |

Volumetric pipets are ideal for measuring accurate volumes of liquids.

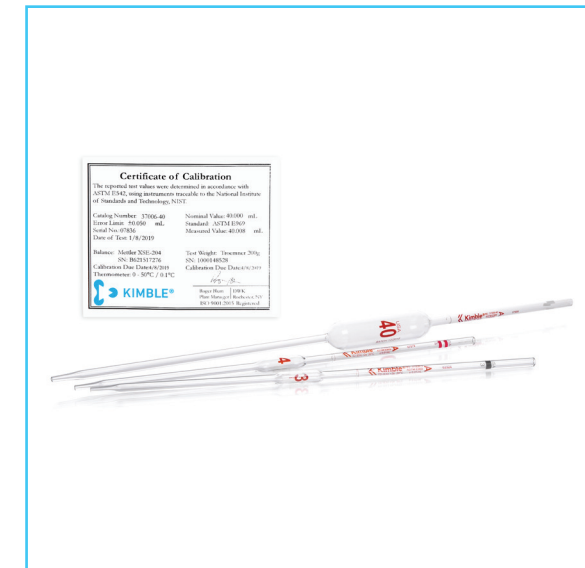
- Letters TD on the pipet indicate to deliver
- Marked with large numerals on the bulb, indicating capacity
- Color-coded (ASTM E1273) for ease in sorting and selecting the correct pipet
- With a legend of permanent brown stain

| Cat. No. | Capacity (mL) | Tolerance (mL) | Overall Length (mm) | Band Color Coding | Case Qty |
|------------|---------------|----------------|---------------------|-------------------|----------|
| 37006-510 | 0.5 | ± 0.006 | 310 | 2 Black | 6 |
| 37006-1 | 1 | ± 0.006 | 310 | Blue | 6 |
| 37006-1510 | 1.5 | ± 0.006 | 335 | — | 6 |
| 37006-2 | 2 | ± 0.006 | 335 | Orange | 6 |
| 37006-2510 | 2.5 | ± 0.006 | 350 | — | 6 |
| 37006-3 | 3 | ± 0.01 | 350 | Black | 6 |
| 37006-4 | 4 | ± 0.01 | 350 | 2 Red | 6 |
| 37006-5 | 5 | ± 0.01 | 365 | White | 6 |
| 37006-6 | 6 | ± 0.01 | 375 | 2 Orange | 6 |
| 37006-7 | 7 | ± 0.01 | 400 | 2 Green | 6 |
| 37006-7510 | 7.5 | ± 0.05 | 545 | Red | 6 |
| 37006-8 | 8 | ± 0.01 | 400 | Blue | 6 |
| 37006-9 | 9 | ± 0.02 | 400 | Black | 6 |
| 37006-10 | 10 | ± 0.02 | 400 | Red | 6 |
| 37006-12 | 12 | ± 0.02 | 460 | — | 3 |
| 37006-15 | 15 | ± 0.03 | 455 | Green | 3 |
| 37006-20 | 20 | ± 0.03 | 505 | Yellow | 3 |
| 37006-25 | 25 | ± 0.03 | 505 | Blue | 3 |
| 37006-30 | 30 | ± 0.03 | 525 | Black | 3 |
| 37006-40 | 40 | ± 0.03 | 525 | White | 3 |
| 37006-50 | 50 | ± 0.05 | 545 | Red | 3 |
| 37006-75 | 75 | ± 0.05 | 550 | Green | 3 |
| 37006-100 | 100 | ± 0.08 | 550 | Yellow | 3 |

Intended for chemical laboratory work. Tip openings are smaller than usually desired for clinical laboratory operations.

- KIMAX® measuring pipet has a permanently marked individual serial number
- Supplied with a Certificate of Graduation Accuracy
- Calibrated to deliver
- Scale is permanent brown stain fused into uniform bore tubing without etching

| Cat. No. | Tolerance (mL) | Capacity (mL) | Overall Length (mm) | Band Color Coding | Graduation Intervals (mL) | Case Qty |
|-------------|----------------|---------------|---------------------|-------------------|---------------------------|----------|
| 37025-1110 | ± 0.01 | 1 | 350 | Red | 0.1 | 12 |
| 37025-11100 | ± 0.01 | 1 | 350 | Yellow | 0.01 | 12 |
| 37025-2 | ± 0.01 | 2 | 350 | Green | 0.1 | 12 |
| 37025-5 | ± 0.02 | 5 | 350 | Blue | 0.1 | 12 |
| 37025-10 | ± 0.03 | 10 | 350 | Orange | 0.1 | 12 |
| 37025-25 | ± 0.05 | 25 | 400 | White | 0.1 | 6 |



KIMBLE® KIMAX® Volumetric Pipets
Class A, Individually Calibrated, Serialized and Certified, Color Coded



KIMBLE® KIMAX® Reusable Reverse Graduated Pipet
Class A, Serialized and Certified



CYLINDERS



KIMBLE® KIMAX® Graduated Cylinders
Class A, Serialized and Certified,
To Deliver, With Bumper



KIMBLE® KIMAX® Graduated Cylinders
Class A, Serialized and Certified, With Glass
Stopper, To Contain



KIMAX® Class A cylinder is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Provided with a hexagonal base flat ground for stability
- SAFE-GARD bumpers are supplied with sizes 25 through 1000mL
- The 10mL size has an enlarged funnel-shaped top for ease of filling

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 20026-10 | 10 | ±0.09 | 165 | 0.1 | 6 |
| 20026-25 | 25 | ±0.17 | 195 | 0.2 | 6 |
| 20026-50 | 50 | ±0.25 | 190 | 1 | 6 |
| 20026-100 | 100 | ±0.40 | 255 | 1 | 6 |
| 20026-250 | 250 | ±0.80 | 330 | 2 | 4 |
| 20026-500 | 500 | ±1.30 | 375 | 5 | 4 |
| 20026-1000 | 1000 | ±2.50 | 460 | 10 | 2 |

KIMAX® Class A serialized and certified cylinders are permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.

- Provided with a hexagonal base flat ground for stability
- TC appears on each 20036 series cylinder and indicates calibration to contain. These cylinders are supplied with a glass stopper.
- Designed from ASTM Specification E1272, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Stopper Size | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|--------------|----------|
| 20036-10 | 10 | ±0.08 | 170 | 0.1 | 9 | 6 |
| 20036-25 | 25 | ±0.14 | 215 | 0.2 | 13 | 6 |
| 20036-50 | 50 | ±0.20 | 195 | 1 | 16 | 6 |
| 20036-100 | 100 | ±0.35 | 255 | 1 | 22 | 6 |
| 20036-250 | 250 | ±0.65 | 330 | 2 | 27 | 1 |
| 20036-500 | 500 | ±1.10 | 380 | 5 | 32 | 1 |
| 20036-1000 | 1000 | ±2.00 | 475 | 10 | 32 | 1 |

BURETS

Used for general purpose titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Both versions are supplied with a PTFE stopcock plug
- Delivery stem of the 10mL size is 115 mm long to meet requirements of potentiometric titration burets (ASTM D664)

| Cat. No. | Tolerance (mL) | Capacity (mL) | Overall Length (mm) | Graduation Intervals (mL) | Closure Size | Case Qty |
|-----------------------------|----------------|---------------|---------------------|---------------------------|--------------|----------|
| Standard Top Opening | | | | | | |
| 17027F-10 | ±0.02 | 10 | 664 | 0.05 | 13mm | 1 |
| 17027F-25 | ±0.03 | 25 | 614 | 0.1 | 13mm | 1 |
| 17027F-50 | ±0.05 | 50 | 745 | 0.1 | 16mm | 1 |
| 17027F-100 | ±0.10 | 100 | 791 | 0.2 | 20mm | 1 |
| Funnel Top Opening | | | | | | |
| 17110F-5 | ±0.01 | 5 | 790 | 0.01 | — | 1 |
| 17110F-10 | ±0.02 | 10 | 810 | 0.02 | — | 1 |



KIMBLE® KIMAX® Buret
Class A, Serialized and Certified



Used for repeated small volume titrations requiring traceable volumetric accuracy. Three-way PTFE stopcock allows automatic filling through bottom side arm. Automatic zero version features reservoir which self zeros, saving an extra step.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable black (17054 series) or white ceramic enamel scale
- Bottom side arm accepts 1/4 inch ID flexible tubing for automatic filling

| Cat. No. | Tolerance (mL) | Capacity (mL) | Overall Length (mm) | Graduation Intervals (mL) | Closure Size | Case Qty |
|---------------------|----------------|---------------|---------------------|---------------------------|--------------|----------|
| Black Enamel | | | | | | |
| 17054F-10 | ±0.02 | 10 | 520 | 0.05 | — | 1 |
| 17054F-25 | ±0.03 | 25 | 580 | 0.1 | — | 1 |
| 17054F-50 | ±0.05 | 50 | 740 | 0.1 | — | 1 |
| 17054F-100 | ±0.10 | 100 | 770 | 0.2 | — | 1 |
| White Enamel | | | | | | |
| 17115F-5 | ±0.01 | 5 | 761 | 0.01 | — | 1 |
| 17115F-10 | ±0.02 | 10 | 781 | 0.02 | — | 1 |
| 17052F-25 | ±0.03 | 25 | 617 | 0.1 | 13mm | 1 |
| 17052F-50 | ±0.05 | 50 | 748 | 0.1 | 16mm | 1 |
| 17052F-100 | ±0.10 | 100 | 794 | 0.2 | 20mm | 1 |



KIMBLE® KIMAX® Buret with
Three-Way Stopcock
Class A, Serialized and Certified





KIMBLE® KIMAX® Automatic Fill Buret with Reservoir Bottle
Class A, Serialized and Certified



KIMAX® precision bore automatic burets are used in applications requiring the highest degree of precision and accuracy for volumetric analysis. These are ideal for repeat titrations requiring traceable volumetric accuracy or when the titrant should not be handled.

- Packed complete with a reservoir bottle, U-shaped drying tube, vented connecting tube, rubber squeeze bulb,
- # 1 single-holed rubber stopper, PTFE stopcock plug and 1/4 inch ID rubber tubing
- Precision ground tips assure uniform outflow
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size stopcock plug is 41530F-2
- Standard Taper Size Between Buret and Bottle
17124F-10: 29
17124F-25: 29
17124F-50: 34
17124F-100: 34
- Manufactured to the specifications found in ASTM E694

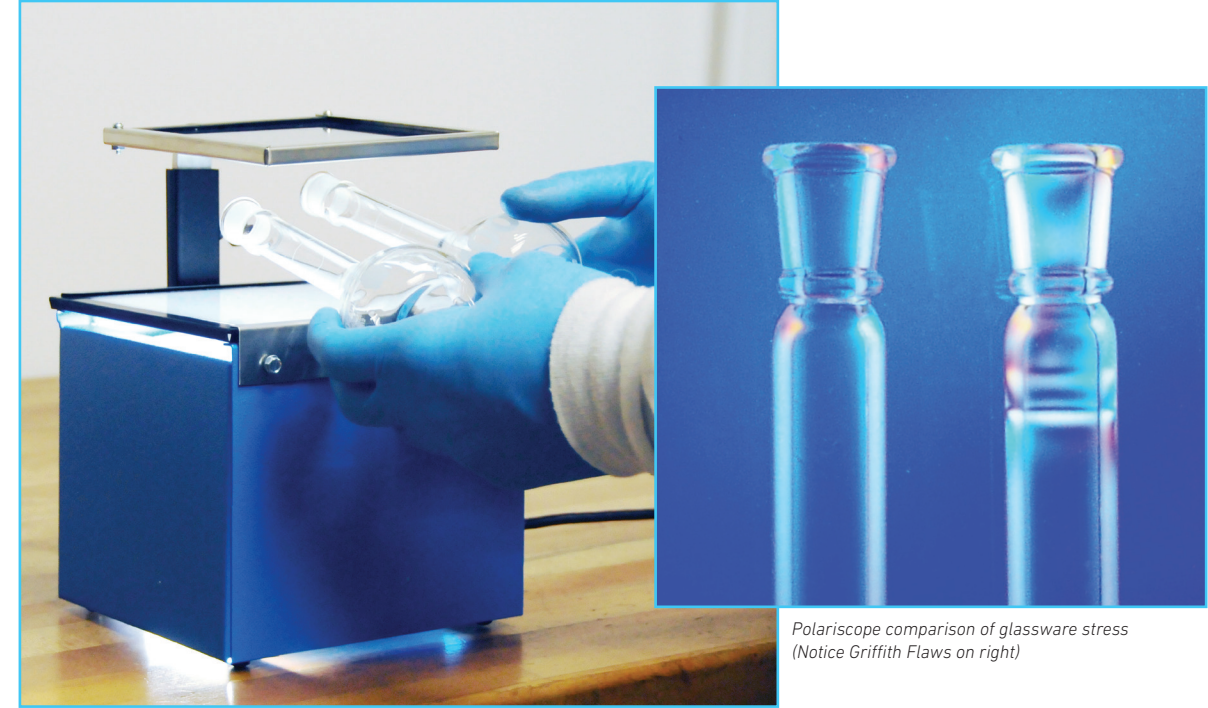
| Cat. No. | Tolerance (mL) | Overall Length (mm) | Graduation Intervals (mL) | Reservoir Capacity (mL) | Buret Capacity (mL) | Case Qty |
|------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------|
| 17124F-10 | ±0.02 | 765 | 0.05 | 1000 | 10 | 1 |
| 17124F-25 | ±0.03 | 858 | 0.1 | 1000 | 25 | 1 |
| 17124F-50 | ±0.05 | 1045 | 0.1 | 2000 | 50 | 1 |
| 17124F-100 | ±0.10 | 1090 | 0.2 | 2000 | 100 | 1 |

KIMBLE® KIMAX® Automatic Fill Buret with Reservoir Bottle, Replacement Parts

| Cat. No. | Description | Case Qty |
|--------------|--|----------|
| 17124F-10B0 | 17124F-10 Buret and Stopcock Only | 1 |
| 17124F-25B0 | 17124F-25 Buret and Stopcock Only | 1 |
| 17124F-50B0 | 17124F-50 Buret and Stopcock Only | 1 |
| 17124F-100B0 | 17124F-100 Buret and Stopcock Only | 1 |
| 17324F-0001 | Glass replacement parts | 1 |
| 17324F-0000 | Atomizer | 1 |
| 17224F-1000 | 1000 mL Bottle Reservoir for 17124F-10 and 17124F-25 Burets | 1 |
| 17224F-2000 | 2000 mL Bottle Reservoir for 17124F-50 and 17124F-100 Burets | 1 |

KIMBLE® VOLUMETRIC GLASSWARE

Benefits of Serialization and Certification



Polariscope comparison of glassware stress (Notice Griffith Flaws on right)

Stress, induced from handling, washing, storage practices or lab use, can cause unexpected weakness or spontaneous breakage and are known as 'Griffith Flaws'. As part of your glass safety management program, using a non-intrusive visual inspection tool, such a polariscope, provides a quick visual confirmation of stress zones and Griffith Flaws which are not easily visible to the human eye.

Contact DWK Life Sciences Technical Services for more information regarding life cycle management of your critical glassware items. Email tech@dwk.com or call 800.225.1437 (Option 4).



The permanently printed batch code indicates date of manufacture. This date code can be used for calibration logs, inventory management and glassware replacement cycles.

CLASS A 02

Heavy Duty Wide Mouth



A result of joint cooperation with our customers and ASTM, our Heavy Duty Wide-Mouth innovative flask design improves pipette access and speeds your work - especially for serial dilutions. Additionally, a heavier, thick-walled design offers superior strength, durability and safety.

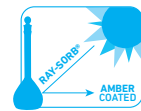
Colorware



Tracking glassware for specific methods, lab areas or cGLP can be challenging and color-coded glassware often helps with this need. Our Colorware glassware can be used to distinguish glassware replacement cycles, glassware dedicated to specific lab areas or methods, isolate chemical cross-contamination or use, identify experiments and projects. (For more information refer to p.29)



RAY-SORB® Amber Coated



To protect light-sensitive contents, our proprietary and permanent RAY-SORB® glass treatment offers the very best defense against the oxidizing effects of light exposure. (For more information refer to p.28)

KimCote®



The clear, durable KimCote® protective coating withstands routine laboratory washing, handling, and improves grip. KimCote® Volumetric Flasks contain spills while reducing the hazard risk within the laboratory environment. (For more information refer to p.31)

FLASKS

Heavy duty, wide-mouth volumetric flasks are designed for high efficiency workflows, with added features that support user safety and long-term durability.

- Wide mouth minimizes glass-to-glass contact allowing greater flexibility in hand movements which reduces the risk of spills
- Wide-mouth opening increases efficiency when performing large numbers of dilutions using volumetric pipets
- Heavy duty walls provide superior strength, durability and safety
- Large volume numbers allow quick identification when selecting glassware



KIMBLE® KIMAX® Heavy Duty Wide Mouth Volumetric Flasks Class A

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Case Qty |
|--|---------------|----------------|-------------|--------------|----------|
| Without Stopper | | | | | |
| 92812N-5 | 5 | ±0.08 | 77 | 13 | 6 |
| 92812N-10 | 10 | ±0.08 | 87 | 13 | 6 |
| 92812N-20 | 20 | ±0.08 | 110 | 13 | 6 |
| 92812N-25 | 25 | ±0.08 | 110 | 13 | 6 |
| 92812N-50 | 50 | ±0.08 | 130 | 13 | 6 |
| 92812N-100 | 100 | ±0.10 | 160 | 16 | 6 |
| 92812N-200 | 200 | ±0.20 | 200 | 19 | 6 |
| 92812N-250 | 250 | ±0.20 | 225 | 19 | 6 |
| 92812N-500 | 500 | ±0.20 | 260 | 13 | 6 |
| 92812N-1000 | 1000 | ±0.30 | 310 | 22 | 1 |
| 92812N-2000 | 2000 | ±0.50 | 370 | 27 | 1 |
| Color Coded PTFE Stopper (Height including stopper) | | | | | |
| 92812F-5 | 5 | ±0.08 | 94 | 13 | 6 |
| 92812F-10 | 10 | ±0.08 | 97 | 13 | 6 |
| 92812F-20 | 20 | ±0.08 | 127 | 13 | 6 |
| 92812F-25 | 25 | ±0.08 | 127 | 13 | 6 |
| 92812F-50 | 50 | ±0.08 | 147 | 13 | 6 |
| 92812F-75 | 75 | ±0.10 | 157 | 13 | 6 |
| 92812F-100 | 100 | ±0.10 | 175 | 16 | 6 |
| 92812F-150 | 150 | ±0.10 | 180 | 16 | 6 |
| 92812F-200 | 200 | ±0.20 | 217 | 19 | 6 |
| 92812F-250 | 250 | ±0.20 | 269 | 19 | 6 |
| 92812F-500 | 500 | ±0.20 | 300 | 19 | 6 |
| 92812F-750 | 750 | ±0.30 | 315 | 22 | 6 |
| 92812F-1000 | 1000 | ±0.30 | 328 | 22 | 1 |
| 92812F-2000 | 2000 | ±0.50 | 392 | 27 | 1 |

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Case Qty |
|---|---------------|----------------|-------------|--------------|----------|
| PE Stopper (Height including stopper) | | | | | |
| 92812P-5 | 5 | ±0.08 | 102 | 13 | 6 |
| 92812P-10 | 10 | ±0.08 | 105 | 13 | 6 |
| 92812P-20 | 20 | ±0.08 | 135 | 13 | 6 |
| 92812P-25 | 25 | ±0.08 | 135 | 13 | 6 |
| 92812P-50 | 50 | ±0.08 | 155 | 16 | 6 |
| 92812P-100 | 100 | ±0.10 | 187 | 19 | 6 |
| 92812P-200 | 200 | ±0.20 | 227 | 19 | 6 |
| 92812P-250 | 250 | ±0.20 | 252 | 19 | 6 |
| 92812P-500 | 500 | ±0.20 | 287 | 22 | 6 |
| 92812P-1000 | 1000 | ±0.30 | 340 | 27 | 1 |
| 92812P-2000 | 2000 | ±0.50 | 400 | 13 | 1 |
| Glass Stopper (Height including stopper) | | | | | |
| 92812G-5 | 5 | ±0.08 | 97 | 13 | 6 |
| 92812G-10 | 10 | ±0.08 | 100 | 13 | 6 |
| 92812G-20 | 20 | ±0.08 | 130 | 13 | 6 |
| 92812G-25 | 25 | ±0.08 | 130 | 13 | 6 |
| 92812G-50 | 50 | ±0.08 | 150 | 13 | 6 |
| 92812G-100 | 100 | ±0.10 | 180 | 16 | 6 |
| 92812G-200 | 200 | ±0.20 | 223 | 19 | 6 |
| 92812G-250 | 250 | ±0.20 | 248 | 19 | 6 |
| 92812G-500 | 500 | ±0.20 | 283 | 19 | 6 |
| 92812G-1000 | 1000 | ±0.30 | 335 | 22 | 1 |
| 92812G-2000 | 2000 | ±0.50 | 395 | 27 | 1 |
| 92812G-4000 | 4000 | ±1.0 | 522 | 38 | 1 |
| 92812G-6000 | 6000 | ±1.0 | 642 | 38 | 1 |



Standard neck volumetric flasks are available with a number of stopper choices. Color-coded PTFE, polyethylene, glass and snap cap.

- Manufactured using premium KIMAX® brand Borosilicate 33 expansion glass, for excellent resistance to breakage, chemical attack, thermal shock while providing long term durability.
- Marking spot is included on all sizes. 28014F and 28014P Series: marking spot is found on sizes 10mL and larger
- Calibrated To Contain
- 28014 and 28014F Series only: Sizes 5 and larger are designed from ASTM Specification E288, Class A requirements. 1 and 2mL sizes are test tube-shaped and are calibrated to E237 tolerances



KIMBLE® KIMAX® Volumetric Flasks
Class A

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper/Closure Size | Height Including Stopper (mm) | Case Qty |
|--------------------------------|---------------|----------------|----------------------|-------------------------------|----------|
| Glass Pennyhead Stopper | | | | | |
| 28014-1 | 1 | ±0.010 | 8 | 95 | 12 |
| 28014-2 | 2 | ±0.015 | 8 | 110 | 12 |
| 28014-5 | 5 | ±0.02 | 9 | 88 | 12 |
| 28014-10 | 10 | ±0.02 | 9 | 103 | 12 |
| 28014-25 | 25 | ±0.03 | 9 | 118 | 12 |
| 28014-50 | 50 | ±0.05 | 9 | 148 | 12 |
| 28014-100 | 100 | ±0.08 | 13 | 180 | 12 |
| 28014-200 | 200 | ±0.10 | 16 | 225 | 12 |
| 28014-250 | 250 | ±0.12 | 16 | 250 | 12 |
| 28014-500 | 500 | ±0.20 | 19 | 287 | 12 |
| 28014-1000 | 1000 | ±0.30 | 22 | 338 | 6 |
| 28014-2000 | 2000 | ±0.50 | 27 | 400 | 4 |
| Polyethylene Stopper | | | | | |
| 28014P-5 | 5 | ±0.02 | 9 | 92 | 12 |
| 28014P-10 | 10 | ±0.02 | 9 | 107 | 12 |
| 28014P-25 | 25 | ±0.03 | 9 | 122 | 12 |
| 28014P-50 | 50 | ±0.05 | 9 | 152 | 12 |
| 28014P-100 | 100 | ±0.08 | 13 | 184 | 12 |
| 28014P-200 | 200 | ±0.10 | 16 | 229 | 12 |
| 28014P-250 | 250 | ±0.12 | 16 | 254 | 12 |
| 28014P-500 | 500 | ±0.20 | 19 | 288 | 12 |
| 28014P-1000 | 1000 | ±0.30 | 22 | 339 | 6 |
| 28014P-2000 | 2000 | ±0.50 | 27 | 400 | 4 |

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper/Closure Size | Height Including Stopper (mm) | Case Qty |
|---------------------------------|---------------|----------------|----------------------|-------------------------------|----------|
| Snap Cap | | | | | |
| 28008-10 | 10 | ±0.02 | 2 | 85 | 12 |
| 28008-25 | 25 | ±0.03 | 2 | 105 | 12 |
| 28008-50 | 50 | ±0.05 | 3 | 135 | 12 |
| 28008-100 | 100 | ±0.08 | 4 | 165 | 12 |
| 28008-200 | 200 | ±0.10 | 5 | 205 | 12 |
| 28008-250 | 250 | ±0.12 | 5 | 230 | 12 |
| 28008-500 | 500 | ±0.20 | 5 | 265 | 12 |
| 28008-1000 | 1000 | ±0.30 | 6 | 315 | 6 |
| 28008-2000 | 2000 | ±0.50 | 8 | 375 | 4 |
| Color Coded PTFE Stopper | | | | | |
| 28014F-2 | 2 | ±0.015 | 8 | 127 | 12 |
| 28014F-5 | 5 | ±0.02 | 9 | 94 | 12 |
| 28014F-10 | 10 | ±0.02 | 9 | 103 | 12 |
| 28014F-25 | 25 | ±0.03 | 9 | 118 | 12 |
| 28014F-50 | 50 | ±0.05 | 9 | 148 | 12 |
| 28014F-100 | 100 | ±0.08 | 13 | 180 | 12 |
| 28014F-200 | 200 | ±0.10 | 16 | 225 | 12 |
| 28014F-250 | 250 | ±0.12 | 16 | 250 | 12 |
| 28014F-500 | 500 | ±0.20 | 19 | 287 | 12 |
| 28014F-1000 | 1000 | ±0.30 | 22 | 338 | 6 |
| 28014F-2000 | 2000 | ±0.50 | 27 | 392 | 4 |

A mixing bulb in the neck, between the stopper and capacity ring, contains approximately one tenth of the capacity of the body and is designed to aid in dissolving or mixing the contents of the flask.

- Calibrated to contain
- All flasks include a marking spot for labeling
- Wide mouth versions allow easy access into these mixing bulb volumetric flasks for applications such as dissolving tablets and other solids
- Heavy wall versions have thicker wall weight for higher mechanical strength and durability to prevent breakage and flaws in the glass

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper Size | Height Including Stopper (mm) | Case Qty |
|----------------------------------|---------------|----------------|--------------|-------------------------------|----------|
| Wide-Mouth | | | | | |
| 623010-0005 | 5 | ±0.02 | 9 | 100 | 1 |
| 623010-0010 | 10 | ±0.02 | 9 | 110 | 1 |
| 623010-0020 | 20 | ±0.03 | 9 | 125 | 1 |
| 623010-0025 | 25 | ±0.03 | 13 | 130 | 1 |
| 623010-0030 | 30 | ±0.03 | 13 | 140 | 1 |
| 623010-0040 | 40 | ±0.05 | 13 | 145 | 1 |
| 623010-0050 | 50 | ±0.05 | 13 | 145 | 1 |
| 623010-0100 | 100 | ±0.08 | 16 | 200 | 1 |
| 623010-0150 | 150 | ±0.08 | 16 | 200 | 1 |
| 623010-0200 | 200 | ±0.10 | 16 | 230 | 1 |
| 623010-0250 | 250 | ±0.12 | 16 | 230 | 1 |
| 623010-0300 | 300 | ±0.12 | 16 | 250 | 1 |
| 623010-0400 | 400 | ±0.15 | 16 | 290 | 1 |
| 623010-0500 | 500 | ±0.15 | 16 | 305 | 1 |
| 623010-1000 | 1000 | ±0.30 | 22 | 345 | 1 |
| 623010-2000 | 2000 | ±0.50 | 27 | 410 | 1 |
| Wide-Mouth | | | | | |
| 28019-50 | 50 | ±0.05 | 9 | 153 | 6 |
| 28019-100 | 100 | ±0.08 | 13 | 180 | 4 |
| 28019-250 | 250 | ±0.12 | 16 | 230 | 4 |
| 28019-500 | 500 | ±0.20 | 19 | 280 | 4 |
| 28019-1000 | 1000 | ±0.30 | 22 | 315 | 4 |
| Wide-Mouth and Heavy Wall | | | | | |
| 623020-0100 | 100 | ±0.08 | 16 | 200 | 1 |
| 623020-0200 | 200 | ±0.12 | 16 | 230 | 1 |
| 623020-0250 | 250 | ±0.12 | 16 | 230 | 1 |
| 623020-0300 | 300 | ±0.12 | 16 | 250 | 1 |
| 623020-0400 | 400 | ±0.15 | 16 | 290 | 1 |
| 623020-0500 | 500 | ±0.15 | 16 | 305 | 1 |
| 623020-1000 | 1000 | ±0.30 | 22 | 345 | 1 |



KIMBLE® KIMAX® Volumetric Flask With Mixing Bulb
Class A, with Glass Stopper





KIMBLE® KIMAX® Volumetric Flask With Red Stripe
Class A, with Glass Stopper

Red vertical striped markings provide a contrast between the graduation line a deep red background for additional visibility of a liquids meniscus.

- Manufactured using premium KIMAX® brand Borosilicate 33 expansion glass, for excellent resistance to breakage, chemical attack, thermal shock while providing long term durability
- Calibrated to contain
- Glass pennyhead stopper is supplied with the flask
- Replacement stopper is 850100

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper Size | Height Including Stopper (mm) | Case Qty |
|------------|---------------|----------------|--------------|-------------------------------|----------|
| 28013-25 | 25 | ±0.03 | 9 | 118 | 12 |
| 28013-50 | 50 | ±0.05 | 9 | 148 | 12 |
| 28013-100 | 100 | ±0.08 | 13 | 180 | 12 |
| 28013-200 | 200 | ±0.10 | 16 | 225 | 12 |
| 28013-250 | 250 | ±0.12 | 16 | 250 | 12 |
| 28013-500 | 500 | ±0.20 | 19 | 287 | 12 |
| 28013-1000 | 1000 | ±0.30 | 22 | 338 | 6 |
| 28013-2000 | 2000 | ±0.50 | 27 | 400 | 4 |



KIMBLE® KIMAX® Volumetric Flask
Class A, Square

Square volumetric flasks especially designed to take up less area and pack more closely on shelves and in refrigerators or other storage cabinets. For example, a shelf 12 inches x 33.5 inches will hold only 12 conventional 1000mL round flasks, but will hold 30 square flasks.

- Square cross-section with a width less than the widest diameter of a typical round flask
- All sizes cover 25-35% less area than conventional flasks
- Due to the added glass weight and the square section, flasks also have greater stability
- Graduation ring is blasted on the neck

| Cat. No. | Capacity (mL) | Stopper Size | Height Including Stopper (mm) | Tolerance Contain Line (mL) | Case Qty |
|------------|---------------|--------------|-------------------------------|-----------------------------|----------|
| 28040-50 | 50 | 9 | 160 | ±0.05 | 1 |
| 28040-100 | 100 | 13 | 195 | ±0.08 | 1 |
| 28040-200 | 200 | 16 | 248 | ±0.10 | 1 |
| 28040-250 | 250 | 16 | 263 | ±0.12 | 1 |
| 28040-500 | 500 | 19 | 320 | ±0.20 | 1 |
| 28046-500 | 500 | 19 | 320 | ±0.20 | 1 |
| 28046-900 | 900 | 22 | 360 | ±0.30 | 1 |
| 28040-1000 | 1000 | 22 | 375 | ±0.30 | 1 |
| 28040-2000 | 2000 | 27 | 440 | ±0.50 | 1 |

A Class A threaded flask supplied with a PTFE/rubber-lined phenolic cap.

- Calibrated to contain
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height Including Stopper (mm) | Thread | Case Qty |
|-------------|---------------|----------------|-------------------------------|--------|----------|
| 621600-0005 | 5 | ±0.02 | 80 | 13-425 | 1 |
| 621600-0010 | 10 | ±0.02 | 90 | 13-425 | 1 |
| 621600-0025 | 25 | ±0.03 | 100 | 13-425 | 1 |
| 621600-0050 | 50 | ±0.05 | 145 | 13-425 | 1 |
| 621600-0100 | 100 | ±0.08 | 165 | 13-425 | 1 |
| 621600-0250 | 250 | ±0.12 | 210 | 20-400 | 1 |
| 621600-0500 | 500 | ±0.20 | 265 | 20-400 | 1 |
| 621600-1000 | 1000 | ±0.30 | 330 | 20-400 | 1 |
| 621600-2000 | 2000 | ±0.50 | 400 | 28-410 | 1 |



KIMBLE® KIMAX® Screw Thread Volumetric Flask
Class A, with Screw Cap

Class A threaded flask with open-top phenolic cap and PTFE-lined silicone septum for syringe access.

- Closed-top phenolic cap with PTFE-faced white rubber liner also included
- Calibrated to contain
- V-shaped bottom provides convenient sample retrieval
- Sandblasted base for writing

| Cat. No. | Capacity (mL) | Tolerance (mL) | Thread Size | Overall Height (mm) | Case Qty |
|-------------|---------------|----------------|-------------|---------------------|----------|
| 297050-0001 | 1 | ±0.010 | 13-425 | 73 | 1 |
| 297050-0002 | 2 | ±0.015 | 13-425 | 73 | 1 |
| 297050-0003 | 3 | ±0.015 | 13-425 | 73 | 1 |
| 297050-0005 | 5 | ±0.020 | 13-425 | 73 | 1 |
| 297050-0010 | 10 | ±0.020 | 13-425 | 73 | 1 |



KIMBLE® KIMAX® Volumetric Flasks
Class A, Threaded Micro Volume



KIMAX® flask with an enlarged mouth, providing easy introduction of samples of solid materials such as sugar beets.

- Graduation ring is blasted on the neck
- Calibrated to contain
- With a marking spot
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Case Qty |
|-----------|---------------|----------------|-------------|--------------|----------|
| 28100-100 | 100 | ±0.10 | 159 | 6.5 | 12 |
| 28100-200 | 200 | ±0.10 | 200 | 7.5 | 12 |
| 28100-500 | 500 | ±0.20 | 264 | 9 | 6 |

KIMBLE® KIMAX® Kohlrusch Volumetric Flask

Comparison of ASTM, CLASS A and CLASS B Tolerances

| Category | Pipets | | Volumetric Flasks | | | | Burets | | Graduated Cylinders | |
|-----------------------|-----------------|---------|--------------------------------------|---------|--------------------------------------|---------|-----------------|---------|---|---------|
| | | | Standard | | Wide Mouth | | | | | |
| Tolerance Description | Tolerance (±mL) | | "Tolerance (±mL) at To Contain Line" | | "Tolerance (±mL) at To Contain Line" | | Tolerance (±mL) | | "Tolerance (±mL) at To Contain/To Deliver Line" | |
| Capacity (mL) | Class A | Class B | Class A | Class B | Class A | Class B | Class A | Class B | Class A | Class B |
| 0.5 | 0.006 | 0.012 | 0.010 | 0.02 | — | — | — | — | — | — |
| 1 | 0.006 | 0.012 | 0.015 | 0.03 | — | — | — | — | — | — |
| 2 | 0.006 | 0.012 | 0.015 | 0.03 | — | — | — | — | — | — |
| 3 | 0.01 | 0.02 | 0.020 | 0.04 | — | — | — | — | — | — |
| 4 | 0.01 | 0.02 | 0.020 | 0.04 | — | — | — | — | — | — |
| 5 | 0.01 | 0.02 | 0.020 | 0.04 | 0.08 | 0.16 | — | — | 0.05 | 0.1 |
| 10 | 0.02 | 0.04 | — | — | 0.08 | 0.16 | 0.02 | 0.04 | 0.10 | 0.2 |
| 15 | 0.03 | 0.06 | — | — | — | — | — | — | — | — |
| 20 | 0.03 | 0.06 | — | — | — | — | — | — | — | — |
| 25 | 0.03 | 0.06 | 0.03 | — | 0.08 | 0.16 | 0.03 | 0.06 | 0.17 | 0.34 |
| 50 | 0.05 | 0.1 | 0.05 | 0.1 | 0.08 | 0.16 | 0.05 | 0.1 | 0.25 | 0.5 |
| 100 | 0.08 | 0.16 | 0.08 | 0.16 | 0.10 | 0.2 | 0.10 | 0.2 | 0.50 | 1 |
| 200 | — | — | 0.10 | 0.2 | 0.20 | 0.4 | — | — | — | — |
| 250 | — | — | 0.12 | 0.24 | 0.20 | 0.4 | — | — | 1.00 | 2 |
| 500 | — | — | 0.20 | 0.4 | — | — | — | — | 2.00 | 4 |
| 1000 | — | — | 0.30 | 0.6 | — | — | — | — | 3.00 | 6 |
| 2000 | — | — | 0.50 | 1 | — | — | — | — | 6.00 | 12 |
| 4000 | — | — | — | — | — | — | — | — | 14.50 | 29 |

Table 2: Tolerances of Class B glassware are twice as large as Class A glassware where not otherwise specified

CYLINDERS

Letters TC on cylinder indicate to contain.

- Pour spout
- SAFE-GARD bumper is supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 20027-10 | 10 | ±0.08 | 165 | 0.1 | 6 |
| 20027-25 | 25 | ±0.14 | 200 | 0.2 | 6 |
| 20027-50 | 50 | ±0.2 | 191 | 1 | 6 |
| 20027-100 | 100 | ±0.35 | 255 | 1 | 6 |
| 20027-250 | 250 | ±0.65 | 330 | 2 | 4 |
| 20027-500 | 500 | ±1.10 | 375 | 5 | 4 |
| 20027-1000 | 1000 | ±2.00 | 460 | 10 | 1 |
| 20027-2000 | 2000 | ±6.00 | 520 | 20 | 1 |



KIMBLE® KIMAX® Graduated Cylinders Class A, with Bumper, Single Scale, To Contain

KIMAX® Class A cylinder is marked with a reverse metric scale.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD bumpers are supplied with sizes 25 through 2000mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|-------------|---------------|----------------|-------------|---------------------------|----------|
| 20028W-10 | 10 | ±0.09 | 165 | 0.1 | 6 |
| 20028W-25 | 25 | ±0.17 | 195 | 0.2 | 6 |
| 20028W-50 | 50 | ±0.25 | 190 | 1 | 6 |
| 20028W-100 | 100 | ±0.40 | 255 | 1 | 6 |
| 20028W-250 | 250 | ±0.80 | 330 | 2 | 4 |
| 20028W-500 | 500 | ±1.30 | 375 | 5 | 4 |
| 20028W-1000 | 1000 | ±2.50 | 460 | 10 | 1 |
| 20028W-2000 | 2000 | ±6.00 | 520 | 20 | 1 |



KIMBLE® KIMAX® Graduated Cylinders Class A, Reverse Graduations, To Deliver, With Bumper



KIMBLE® KIMAX® Pharmaceutical Graduates
Class A, Conical, To Deliver, Double Scale

KIMAX® graduated cylinder with scales in both metric and U.S. customary units.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Sizes 8 fluid drams (25mL approx.) and larger are designed from ASTM Specification E1094, Type 2 requirements (also NBS Handbook 44)
- Sizes 4 fluid drams (15mL), and smaller do not meet ASTM E1094 nor NBS Handbook 44 requirements and therefore may not be used for prescription work in states which adopt these specifications
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

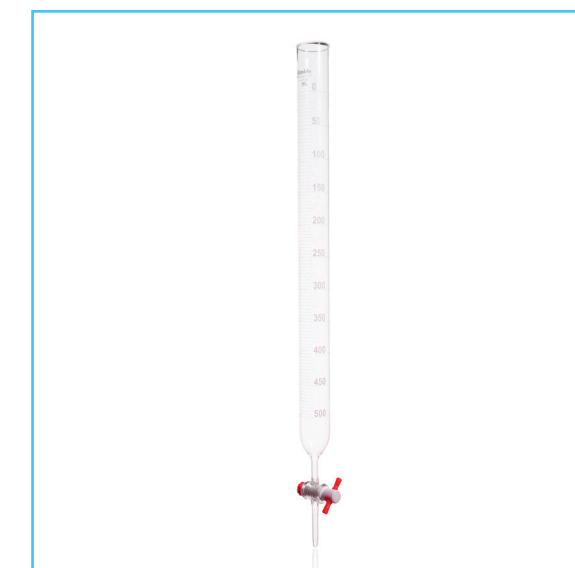
| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Case Qty |
|-----------|---------------|---|-------------|----------|
| 60345-40 | 15 | at 2 ±0.1, above 2 to 10 ±0.2, above 10 ±0.4 | 139 | 12 |
| 60345-80 | 25 | at 5 ±0.2, above 5 to 15 ±0.4, above 15 ±0.6 | 113 | 1 |
| 60345-2 | 50 | up to 25 ±0.6, above 25 ±0.8 | 139 | 12 |
| 60345-60 | 60 | all points ±0.1 | 139 | 1 |
| 60345-4 | 100 | up to 30 ±0.8, above 30 to 80 ±1.1, above 80 ±1.4 | 159 | 8 |
| 60345-120 | 120 | up to 3 ±0.1, above 3 ±0.2 | 82 | 1 |
| 60345-8 | 250 | up to 50 ±1.4, above 50 to 100 ±1.8, above 100 to 175 ±2.2, above 175 ±2.8 | 193 | 1 |
| 60345-16 | 500 | up to 100 ±2.2, above 100 to 150 ±2.8, above 150 to 275 ±3.4, above 275 to 425 ±4.1, above 425 ±4.8 | 243 | 6 |
| 60345-32 | 1000 | at 200 ±4.1, above 200 to 250 ±4.8, above 250 to 350 ±5.6, above 350 to 600 ±6.4, above 600 to 800 ±7.2, above 800 ±8.1 | 139 | 1 |

BURETS

Large capacity KIMAX® burets / burets used for dispensing laboratory solvents or solutions for a variety of clinical and industrial applications.

- Supplied with a chemically-resistant, self-lubricating PTFE stopcock
- Easy-to-read durable white ceramic enamel scale
- Replacement 4mm straight bore stopcock plug is 821001-0004
- Outer diameter —
17080F-250: 36mm
17080F-500: 43mm
17080F-1000: 52mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Overall Length (mm) | Case Qty |
|-------------|---------------|----------------|---------------------------|---------------------|----------|
| 17080F-250 | 250 | ±2.0 | 1 | 544 | 2 |
| 17080F-500 | 500 | ±2.5 | 5 | 646 | 2 |
| 17080F-1000 | 1000 | ±5.0 | 10 | 780 | 2 |

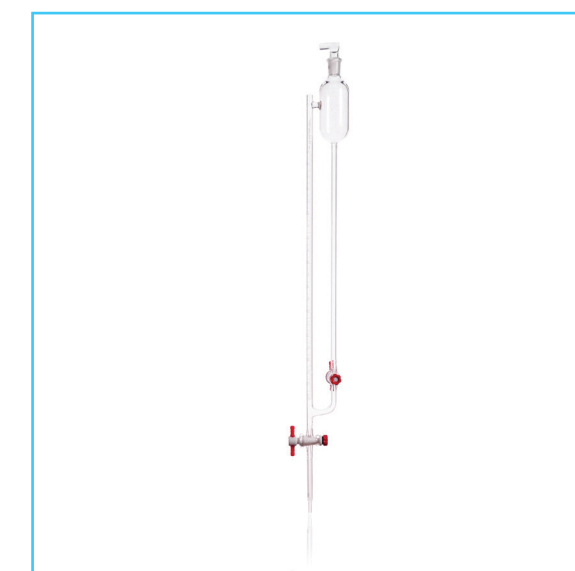


KIMBLE® KIMAX® Dispensing Burets

Micro volume buret is used for small volume titrations. Includes side reservoir with stopper to hold titration solvent and provide controlled refill into buret.

- Side reservoir capacity is approximately 70mL
- Easy-to-read durable white ceramic enamel scale
- Replacement 2mm straight bore stopcock plug is 821001-0002, and replacement stopper is a medium length 14/20 standard taper glass stopper
- Supplied with two chemically-resistant, self-lubricating PTFE stopcock plugs
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Overall Length (mm) | Case Qty |
|-----------|---------------|----------------|---------------------------|---------------------|----------|
| 17132F-2 | 2 | ±0.01 | 0.01 | 590 | 1 |
| 17132F-5 | 5 | ±0.01 | 0.01 | 815 | 1 |
| 17132F-10 | 10 | ±0.02 | 0.05 | 620 | 1 |



KIMBLE® KIMAX® Micro Burets
Side Reservoir, for Auto Fill



KIMBLE® KIMAX® Diagonal Bore Buret

Used for general purpose titrations requiring traceable volumetric accuracy.

- Diagonal bore stopcock and a funnel top
- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Stopcock bore diameter of 2mm
- Easy-to-read durable white ceramic enamel scale
- Designed from ASTM Specification E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Overall Length (mm) | Case Qty |
|-----------|---------------|----------------|---------------------------|---------------------|----------|
| 17094F-50 | 50 | ±0.05 | 0.1 | 746 | 1 |



KIMBLE® Total Acidity Brewing Kit

Developed around the ASBC Method for Total Acidity - Each Kit includes a copy of the Method and a portion of each sale for the Total Acidity Kit goes back to the ASBC - our way of giving back to the Brewing community.

- ASBC Methods of Analysis is a tool that ensures quality brewing results.
- Includes a laminated copy of the full method instructions, lab glassware, and components needed to complete the test
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Case Qty |
|------------|----------|
| 37200-1000 | 1 |

| Cat. No. | Case Qty |
|---|----------|
| Class A Volumetric Pipets, 50mL | 3 |
| Straight Buret with PTFE Stopcock, 50mL | 1 |
| Tall Form Berzelius Beakers, 200mL | 6 |
| Rubber Bulb | 1 |
| Buret Stand with Clamp | 1 |

RAY-SORB® AMBER FLASKS

RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths.

- Less than 1% transmission below 400nm and approximately 5% transmission from 400-600nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings

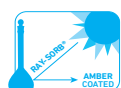
KIMBLE® RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask
Class A, Amber

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Case Qty |
|--|---------------|----------------|-------------|--------------|----------|
| No Stopper | | | | | |
| 92822N-5 | 5 | ±0.08 | 77 | 13 | 6 |
| 92822N-10 | 10 | ±0.08 | 80 | 13 | 6 |
| 92822N-20 | 20 | ±0.08 | 110 | 13 | 6 |
| 92822N-25 | 25 | ±0.08 | 110 | 13 | 6 |
| 92822N-50 | 50 | ±0.08 | 130 | 13 | 6 |
| 92822N-100 | 100 | ±0.10 | 160 | 16 | 6 |
| 92822N-200 | 200 | ±0.10 | 200 | 19 | 6 |
| 92822N-250 | 250 | ±0.10 | 225 | 19 | 6 |
| 92822N-500 | 500 | ±0.20 | 260 | 19 | 6 |
| 92822N-1000 | 1000 | ±0.30 | 310 | 22 | 1 |
| 92822N-2000 | 2000 | ±0.50 | 370 | 27 | 1 |
| Polyethylene Stopper (Height including stopper) | | | | | |
| 92822P-5 | 5 | ±0.08 | 102 | 13 | 6 |
| 92822P-10 | 10 | ±0.08 | 105 | 13 | 6 |
| 92822P-20 | 20 | ±0.08 | 135 | 13 | 6 |
| 92822P-25 | 25 | ±0.08 | 135 | 13 | 6 |
| 92822P-50 | 50 | ±0.08 | 155 | 13 | 6 |
| 92822P-100 | 100 | ±0.10 | 187 | 16 | 6 |
| 92822P-200 | 200 | ±0.20 | 227 | 19 | 6 |
| 92822P-250 | 250 | ±0.20 | 252 | 19 | 6 |
| 92822P-500 | 500 | ±0.20 | 287 | 19 | 6 |
| 92822P-1000 | 1000 | ±0.30 | 340 | 22 | 1 |
| 92822P-2000 | 2000 | ±0.50 | 400 | 27 | 1 |

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Case Qty |
|---|---------------|----------------|-------------|--------------|----------|
| Glass Stopper (Height including stopper) | | | | | |
| 92822G-5 | 5 | ±0.08 | 97 | 13 | 6 |
| 92822G-10 | 10 | ±0.08 | 100 | 13 | 6 |
| 92822G-20 | 20 | ±0.08 | 130 | 13 | 6 |
| 92822G-25 | 25 | ±0.08 | 130 | 13 | 6 |
| 92822G-50 | 50 | ±0.08 | 150 | 13 | 6 |
| 92822G-100 | 100 | ±0.10 | 180 | 16 | 6 |
| 92822G-200 | 200 | ±0.20 | 223 | 19 | 6 |
| 92822G-250 | 250 | ±0.20 | 248 | 19 | 6 |
| 92822G-500 | 500 | ±0.20 | 283 | 19 | 6 |
| 92822G-1000 | 1000 | ±0.30 | 335 | 22 | 1 |
| 92822G-2000 | 2000 | ±0.50 | 395 | 27 | 1 |
| PTFE Stopper (Height including stopper) | | | | | |
| 92822F-5 | 5 | ±0.08 | 94 | 13 | 6 |
| 92822F-10 | 10 | ±0.08 | 97 | 13 | 6 |
| 92822F-20 | 20 | ±0.08 | 127 | 13 | 6 |
| 92822F-25 | 25 | ±0.08 | 127 | 13 | 6 |
| 92822F-50 | 50 | ±0.08 | 147 | 13 | 6 |
| 92822F-100 | 100 | ±0.10 | 175 | 16 | 6 |
| 92822F-200 | 200 | ±0.20 | 217 | 19 | 6 |
| 92822F-250 | 250 | ±0.20 | 269 | 19 | 6 |
| 92822F-500 | 500 | ±0.20 | 300 | 19 | 6 |
| 92822F-1000 | 1000 | ±0.30 | 328 | 22 | 1 |
| 92822F-2000 | 2000 | ±0.50 | 392 | 27 | 1 |



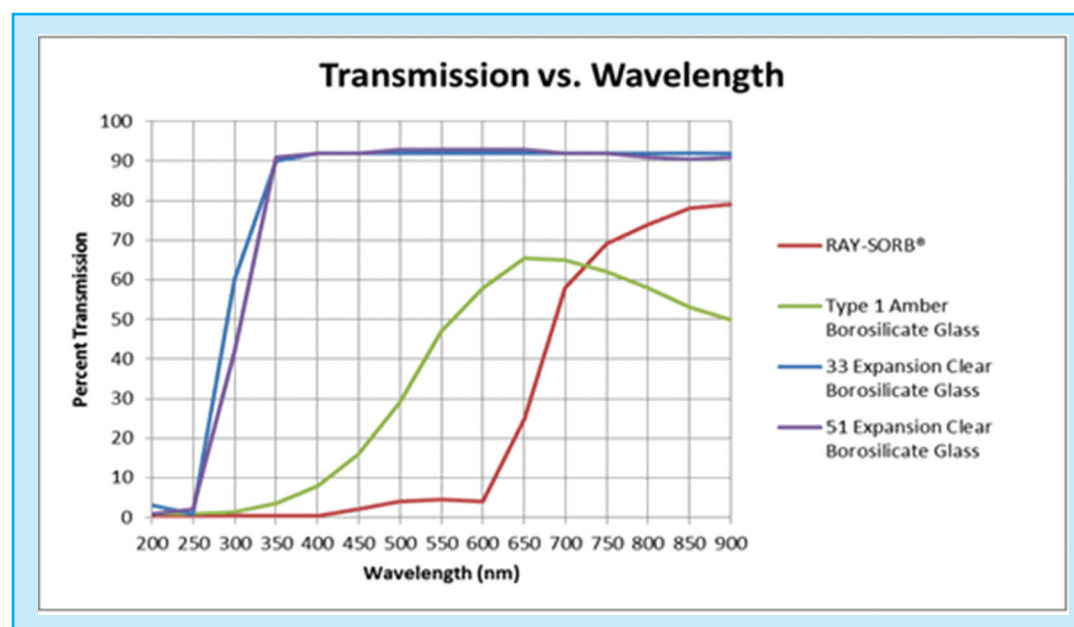
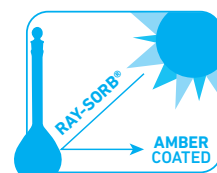
KIMBLE® RAY-SORB® Volumetric Flask
Class A, With Color-Coded, Stopper, Amber



RAY-SORB® Light Transmittance Chart

RAY-SORB® amber processing is optimized to give maximum protection of photosensitive compounds. Conventional amber manufacturing techniques use a process to coat the exterior surface of the glass. While RAY-SORB® branded products use an ion exchange process to embed compounds into the surface of the glass formulation.

When comparing the light resistance properties of the two techniques, RAY-SORB® is superior in blocking transmittance of external sources of light from approximately 200 to 720nm. With less than 1% transmission below 400nm and approximately 5% transmission from 400-600nm.



These flasks are RAY-SORB® processed to protect your light-sensitive contents from short-length light waves.

- Calibrated to contain
- With a marking spot
- Supplied with a PTFE Standard Taper stopper having a color-coded handle
- Replacement stopper is 41901R

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height Including Stopper (mm) | Stopper Color | Case Qty |
|------------|---------------|----------------|-------------------------------|---------------|----------|
| 28016-10 | 10 | ±0.02 | 103 | Black | 12 |
| 28016-25 | 25 | ±0.03 | 118 | Black | 12 |
| 28016-50 | 50 | ±0.05 | 148 | Black | 12 |
| 28016-100 | 100 | ±0.08 | 180 | Orange | 12 |
| 28016-200 | 200 | ±0.10 | 225 | Blue | 12 |
| 28016-250 | 250 | ±0.12 | 250 | Blue | 12 |
| 28016-500 | 500 | ±0.20 | 287 | Green | 12 |
| 28016-1000 | 1000 | ±0.30 | 338 | Yellow | 6 |

COLORWARE

Colorware Volumetric Flasks are available in red, green, blue, yellow and pink markings. Color-coded glassware allows users to differentiate between applications, chemicals, workflows, laboratory departments and projects. Additionally, color markings reduce cross-contamination, great for organization and allows for easy identification of glassware between labs.

- Manufactured using premium KIMAX® brand Borosilicate 33 expansion glass, for excellent resistance to breakage, chemical attack, thermal shock while providing long term durability.
- Single graduation ring is calibration To Contain
- Glass stopper included, along with a durable, matte marking area for labeling
- Replacement stopper: 850100 series

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper Size | Height Including Stopper (mm) | Case Qty |
|---------------|---------------|----------------|--------------|-------------------------------|----------|
| Green | | | | | |
| 28014E-25 | 25 | ±0.03 | 9 | 118 | 6 |
| 28014E-50 | 50 | ±0.05 | 9 | 148 | 6 |
| 28014E-100 | 100 | ±0.08 | 13 | 180 | 6 |
| 28014E-250 | 250 | ±0.12 | 16 | 250 | 6 |
| 28014E-500 | 500 | ±0.20 | 19 | 287 | 6 |
| 28014E-1000 | 1000 | ±0.30 | 22 | 338 | 1 |
| Pink | | | | | |
| 28014PNK-25 | 25 | ±0.03 | 9 | 118 | 6 |
| 28014PNK-50 | 50 | ±0.03 | 9 | 148 | 6 |
| 28014PNK-100 | 100 | ±0.08 | 13 | 180 | 6 |
| 28014PNK-250 | 250 | ±0.12 | 16 | 250 | 6 |
| 28014PNK-500 | 500 | ±0.20 | 19 | 287 | 6 |
| 28014PNK-1000 | 1000 | ±0.30 | 22 | 338 | 1 |
| Blue | | | | | |
| 28014B-25 | 25 | ±0.03 | 9 | 118 | 6 |
| 28014B-50 | 50 | ±0.05 | 9 | 148 | 6 |
| 28014B-100 | 100 | ±0.08 | 13 | 180 | 6 |
| 28014B-250 | 250 | ±0.12 | 16 | 250 | 6 |
| 28014B-500 | 500 | ±0.20 | 19 | 287 | 6 |
| 28014B-1000 | 1000 | ±0.30 | 22 | 338 | 1 |
| Red | | | | | |
| 28014R-25 | 25 | ±0.03 | 9 | 118 | 6 |
| 28014R-50 | 50 | ±0.05 | 9 | 148 | 6 |
| 28014R-100 | 100 | ±0.08 | 13 | 180 | 6 |
| 28014R-250 | 250 | ±0.12 | 16 | 250 | 6 |
| 28014R-500 | 500 | ±0.20 | 19 | 287 | 6 |
| 28014R-1000 | 1000 | ±0.30 | 22 | 338 | 1 |
| Yellow | | | | | |
| 28014Y-25 | 25 | ±0.03 | 9 | 118 | 6 |
| 28014Y-50 | 50 | ±0.05 | 9 | 148 | 6 |
| 28014Y-100 | 100 | ±0.08 | 13 | 180 | 6 |
| 28014Y-250 | 250 | ±0.12 | 16 | 250 | 6 |
| 28014Y-500 | 500 | ±0.20 | 19 | 287 | 6 |
| 28014Y-1000 | 1000 | ±0.30 | 22 | 338 | 1 |



KIMBLE® KIMAX® Colorware Volumetric Flask
Class A



SAFETY COATED KIMCOTE®

KimCote® protective plastic coating prevents chain reactions of laboratory accidents from occurring, including glassware breakage, spills of toxic or corrosive chemicals, exposure to harmful chemicals and their side reactions. When performing experiments and methods involving expensive samples, KimCote® delivers an extra layer of safety in preserving your precious samples and protecting the user from harmful exposure.

Features:

- Clear coating for improved sample viewing
- Unique texture for non-slip handling surface, whether wet or dry
- Autoclavable and chemically resistant
- Durable and long lasting

Applications:

- Pressurized glassware
- Chemical storage
- Transportation of samples
- Handling of hazardous, chemicals, harmful biologicals and acids

Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals.

- Calibrated to contain
- Wide mouth volumetric flasks feature neck dimensions that will easily accommodate pipets
- Superior strength, durability and heavy uniform walls ensure safety in the lab
- Flat interior bottoms are ideal for stirring with standard stir bars

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper Size | Height Including Stopper (mm) | Case Qty |
|------------------------------|---------------|----------------|--------------|-------------------------------|----------|
| Heavy Duty Wide-Mouth | | | | | |
| KC92820G-50 | 50 | ±0.08 | 13 | 155 | 6 |
| KC92812G-100 | 100 | ±0.10 | 16 | 180 | 6 |
| KC92812G-250 | 250 | ±0.20 | 19 | 248 | 6 |
| KC92812G-500 | 500 | ±0.20 | 19 | 283 | 6 |
| KC92812G-1000 | 1000 | ±0.30 | 22 | 335 | 1 |
| KC92812G-2000 | 2000 | ±0.50 | 27 | 395 | 1 |
| KC92812G-4000 | 4000 | ±1.0 | 38 | 522 | 1 |
| Standard | | | | | |
| KC28014-100 | 100 | ±0.08 | 13 | 180 | 12 |
| KC28014-250 | 250 | ±0.12 | 16 | 250 | 12 |
| KC28014-500 | 500 | ±0.20 | 19 | 287 | 12 |
| KC28014-1000 | 1000 | ±0.30 | 22 | 338 | 4 |
| KC28014-2000 | 2000 | ±0.50 | 27 | 400 | 2 |

KimCote® Class A cylinder is marked with a reverse metric scale.

- KimCote® safety coating reduces the hazards of shattered glass
- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Cylinder is marked with a white, reverse, single metric scale
- Hexagonal base is flat ground for stability



| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|---------------|---------------|----------------|-------------|---------------------------|----------|
| KC20028W-100 | 100 | ±0.40 | 255 | 1 | 1 |
| KC20028W-250 | 250 | ±0.80 | 330 | 2 | 1 |
| KC20028W-500 | 500 | ±1.30 | 375 | 5 | 1 |
| KC20028W-1000 | 1000 | ±2.50 | 460 | 10 | 1 |
| KC20028W-2000 | 2000 | ±6.00 | 520 | 20 | 1 |



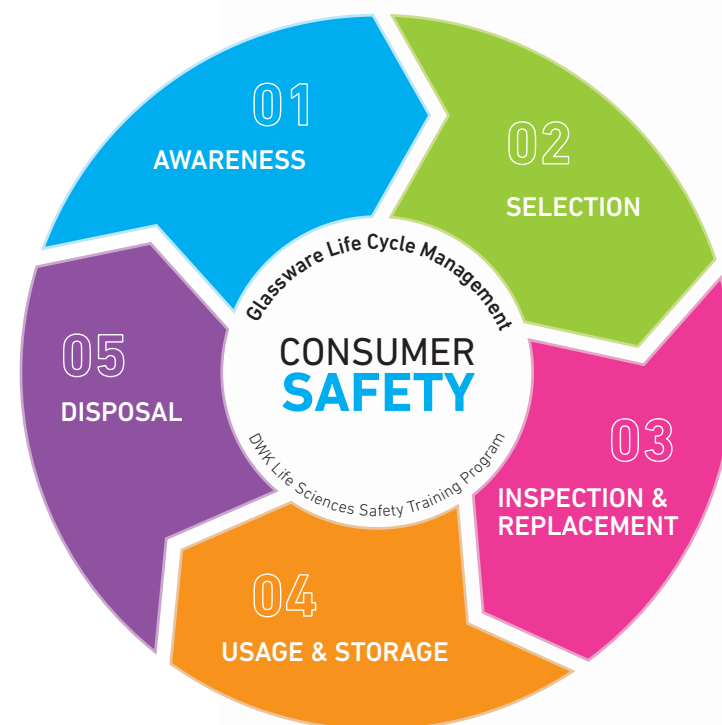
KIMBLE® KimCote® Volumetric Flask
Class A, Safety Coated



KIMBLE® KimCote® Graduated Cylinder
Class A, with Reverse Graduations, To Deliver,
With Bumper

KIMBLE® VOLUMETRIC GLASSWARE

Our clear plastic coating improves grip, is dishwasher compatible and helps contain glass fragments due to breakage. Whether liquids, gels or solids, KimCote® can help prevent injury and reduce hazards to other personnel, samples, or equipment.



Glass Safety Training Program

If you desire a safer work environment, DWK Life Sciences offers a free glass safety training program. The Instructor covers best life cycle management practices from selecting proper glassware for your applications through Use & Care guidelines. The live, interactive class is available on-site or online and includes individual Certificates of Completion.

Please contact DWK Life Sciences Technical Services for more information and arrange for your free DWK Glass Safety Training Program. Email tech@dwk.com or call 800.225.1437 (Option 4).



CLASS B 03

| Class A vs. Class B | ASTM Tolerance | | |
|--------------------------|----------------|-------|-------|
| | Spec | A | B |
| Volumetric Flask 50mL | E288 | ±0.05 | ±0.10 |
| Volumetric Flask 50mL WM | E288 | ±0.08 | ±0.16 |
| Volumetric Pipet 5mL | E969 | ±0.01 | ±0.02 |
| Graduated Pipet 5mL | E1293 | ±0.02 | ±0.04 |
| Measuring Cylinder 50mL | E1272 | ±0.25 | ±0.50 |

FLASKS

Volumetric flasks with yellow, polyethylene snap caps in a range of sizes

- Marking spot is included on all sizes.
- Calibrated To Contain
- 28015 Series Only:
1 & 2mL flasks are test tube shaped
- Designed from ASTM Specification E288, Class B requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Stopper/ Closure Size | Height Including Stopper (mm) | Case Qty |
|----------------------|---------------|----------------|-----------------------|-------------------------------|----------|
| Snap Cap | | | | | |
| 28010-10 | 10 | ±0.04 | 2 | 85 | 12 |
| 28010-25 | 25 | ±0.06 | 2 | 100 | 12 |
| 28010-50 | 50 | ±0.10 | 3 | 130 | 12 |
| 28010-100 | 100 | ±0.16 | 4 | 160 | 12 |
| 28010-200 | 200 | ±0.20 | 5 | 200 | 12 |
| 28010-250 | 250 | ±0.24 | 5 | 225 | 12 |
| 28010-500 | 500 | ±0.40 | 5 | 260 | 12 |
| 28010-1000 | 1000 | ±0.60 | 6 | 310 | 6 |
| 28010-2000 | 2000 | ±1.00 | 8 | 370 | 4 |
| PE Stopper | | | | | |
| 28015P-10 | 10 | ±0.16 | 13 | 184 | 12 |
| 28015P-100 | 100 | ±0.16 | 13 | 184 | 12 |
| 28015P-1000 | 1000 | ±0.16 | 13 | 200 | 6 |
| Glass Stopper | | | | | |
| 28015-10 | 10 | ±0.04 | 9 | 103 | 12 |
| 28015-25 | 25 | ±0.06 | 9 | 118 | 12 |
| 28015-50 | 50 | ±0.10 | 9 | 148 | 12 |
| 28015-100 | 100 | ±0.16 | 13 | 180 | 12 |
| 28015-200 | 200 | ±0.20 | 16 | 225 | 12 |
| 28015-250 | 250 | ±0.24 | 16 | 250 | 12 |
| 28015-500 | 500 | ±0.40 | 19 | 287 | 12 |
| 28015-1000 | 1000 | ±0.60 | 22 | 338 | 6 |
| 28015-2000 | 2000 | ±1.00 | 27 | 400 | 4 |



KIMBLE® KIMAX® Volumetric Flask
Class B



CYLINDERS



KIMBLE® KIMAX® Graduated Cylinders
Class B, To Deliver, With Bumper

TD appears on each cylinder and indicates the cylinder is calibrated to deliver.

- Red stripe version features a clear, white scale which is highlighted against a ruby red stripe
- Blue and white markings are made of durable ceramic enamel
- SAFE-GARD bumpers are supplied with sizes 25 through 2000mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|---|---------------|----------------|-------------|---------------------------|----------|
| Single White Scale with Red Stripe | | | | | |
| 20024D-10 | 10 | ±0.1 | 165 | 0.1 | 24 |
| 20024D-25 | 25 | ±0.3 | 195 | 0.2 | 24 |
| 20024D-50 | 50 | ±0.4 | 190 | 1 | 24 |
| 20024D-100 | 100 | ±0.6 | 255 | 1 | 24 |
| 20024D-250 | 250 | ±1.4 | 330 | 2 | 12 |
| 20024D-500 | 500 | ±2.6 | 375 | 5 | 8 |
| 20024D-1000 | 1000 | ±5.0 | 460 | 10 | 4 |
| 20024D-2000 | 2000 | ±10.0 | 520 | 20 | 4 |
| Single White Scale | | | | | |
| 20024-10 | 10 | ±0.1 | 135 | 0.2 | 24 |
| 20024-25 | 25 | ±0.3 | 140 | 0.5 | 24 |
| 20024-50 | 50 | ±0.4 | 190 | 1 | 24 |
| 20024-100 | 100 | ±0.6 | 255 | 1 | 24 |
| 20024-250 | 250 | ±1.4 | 330 | 2 | 12 |
| 20024-500 | 500 | ±2.6 | 375 | 5 | 8 |
| 20024-1000 | 1000 | ±5.0 | 460 | 10 | 4 |
| 20024-2000 | 2000 | ±10.0 | 520 | 20 | 4 |
| Single Blue Scale | | | | | |
| 20025-10 | 10 | ±0.1 | 135 | 0.2 | 24 |
| 20025-25 | 25 | ±0.3 | 140 | 0.5 | 24 |
| 20025-50 | 50 | ±0.4 | 190 | 1 | 24 |
| 20025-100 | 100 | ±0.6 | 255 | 1 | 24 |
| 20025-250 | 250 | ±1.4 | 330 | 2 | 12 |
| 20025-500 | 500 | ±2.6 | 375 | 5 | 8 |
| 20025-1000 | 1000 | ±5.0 | 460 | 10 | 4 |
| 20025-2000 | 2000 | ±10.0 | 520 | 20 | 4 |

TC appears on each cylinder and indicates the cylinder is calibrated to contain.

- KIMAX® cylinders feature durable blue or white ceramic enamel
- Designed from ASTM Specification E1272, Style II, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Stopper Size | Graduation Intervals (mL) | Case Qty |
|---|---------------|----------------|-------------|--------------|---------------------------|----------|
| Glass Stopper and White Scale | | | | | | |
| 20039-10 | 10 | ±0.1 | 135 | 13 | 0.2 | 24 |
| 20039-25 | 25 | ±0.3 | 160 | 13 | 0.5 | 24 |
| 20039-50 | 50 | ±0.4 | 195 | 16 | 1 | 24 |
| 20039-100 | 100 | ±0.6 | 255 | 22 | 1 | 24 |
| 20039-250 | 250 | ±1.4 | 330 | 27 | 2 | 8 |
| 20039-500 | 500 | ±2.6 | 380 | 32 | 5 | 6 |
| 20039-1000 | 1000 | ±5.0 | 475 | 32 | 10 | 4 |
| 20039-2000 | 2000 | ±10.0 | 550 | 38 | 20 | 2 |
| Polyethylene Stopper and White Scale | | | | | | |
| 20039P-50 | 50 | ±0.4 | 195 | 16 | 1 | 24 |
| 20039P-100 | 100 | ±0.6 | 255 | 22 | 1 | 24 |
| 20039P-1000 | 1000 | ±5.0 | 475 | 32 | 10 | 4 |
| Glass Stopper and Blue Scale | | | | | | |
| 20040-10 | 10 | ±0.1 | 135 | 13 | 0.2 | 24 |
| 20040-25 | 25 | ±0.3 | 160 | 13 | 0.5 | 24 |
| 20040-50 | 50 | ±0.4 | 195 | 16 | 1 | 24 |
| 20040-100 | 100 | ±0.6 | 255 | 22 | 1 | 24 |
| 20040-250 | 250 | ±1.4 | 330 | 27 | 2 | 8 |
| 20040-500 | 500 | ±2.6 | 380 | 32 | 5 | 6 |
| 20040-1000 | 1000 | ±5.0 | 475 | 32 | 10 | 4 |
| 20040-2000 | 2000 | ±10.0 | 550 | 38 | 20 | 2 |

A reduction in overall height compared to a typical cylinder provides greater stability and decreased breakage.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Bodies have a larger diameter than comparable sizes of 20024
- Two pour outs are provided
- Scale is durable white ceramic enamel

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|-----------|---------------|----------------|-------------|---------------------------|----------|
| 20032-50 | 50 | ±1 | 140 | 1 | 12 |
| 20032-100 | 100 | ±2 | 156 | 2 | 12 |



KIMBLE® KIMAX® Graduated Cylinders
Class B, with Stopper, To Contain



KIMBLE® KIMAX® Graduated Cylinders
Low Form, Class B



KIMBLE® KIMAX® Graduated Cylinders
Class B, Double Scale, With Bumper, To Deliver

A double metric scale (20030 series) has two sets of numerals, one reading from the bottom to the top of the cylinder (ascending) and the other reading from the top to the bottom (descending).

- TD appears on each 20030 series cylinder and indicates the cylinder is calibrated to deliver
- 10mL size has an enlarged funnel top for ease of filling
- SAFE-GARD bumpers are supplied with sizes 25 through 2000mL and are used to prevent the beaker from shattering when tipped over.
- Designed from ASTM E1272, Style I, Class B requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 20030-10 | 10 | ±0.1 | 135 | 0.2 | 24 |
| 20030-25 | 25 | ±0.3 | 140 | 0.5 | 24 |
| 20030-50 | 50 | ±0.4 | 190 | 1 | 24 |
| 20030-100 | 100 | ±0.6 | 255 | 1 | 24 |
| 20030-250 | 250 | ±1.4 | 330 | 2 | 12 |
| 20030-500 | 500 | ±2.6 | 375 | 5 | 8 |
| 20030-1000 | 1000 | ±5.0 | 460 | 10 | 4 |
| 20030-2000 | 2000 | ±10.0 | 520 | 20 | 4 |



KIMBLE® KIMAX® Graduated Cylinder
Class B, Single Scale, To Contain, With Bumper

Graduated Cylinders are designed to deliver (TD) an accurate volume of liquid.

- TC appears on each 20022 series cylinder and indicates the cylinder is calibrated to contain, to receive liquids where volumetric calculations are based solely on the volume contained within the cylinder.
- 10mL size has an enlarged funnel top for ease of filling
- SAFE-GARD bumpers are supplied with sizes 25 through 2000mL and are used to prevent the beaker from shattering when tipped over.
- Designed from ASTM E1272, Style I, Class B requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 20022-10 | 10 | ±0.1 | 135 | 0.2 | 12 |
| 20022-25 | 25 | ±0.3 | 140 | 0.5 | 1 |
| 20022-50 | 50 | ±0.4 | 190 | 1 | 12 |
| 20022-100 | 100 | ±0.6 | 255 | 1 | 12 |
| 20022-250 | 250 | ±1.4 | 330 | 2 | 6 |
| 20022-500 | 500 | ±2.6 | 375 | 5 | 4 |
| 20022-1000 | 1000 | ±5.0 | 460 | 10 | 4 |
| 20022-2000 | 2000 | ±10.0 | 520 | 20 | 2 |

KIMAX® cylinder used in the determination of emulsifying and demulsifying tendencies of lubricating oils (ASTM D1401).

- TC appears on each cylinder and indicates the cylinder is calibrated to contain
- Round base to fit baths in which this cylinder is generally used
- Pour spout
- Scale is durable white ceramic enamel

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|-----------|---------------|----------------|-------------|---------------------------|----------|
| 20011-100 | 100 | ±1.0 | 230 | 1 | 1 |



KIMBLE® KIMAX® Graduated Cylinder for
Emulsion Test
Class B

KIMAX® cylinder used in measuring particle size distribution in soil suspensions by means of a hydrometer (ASTM D422 and AASHTO T88). While the 1205mL size is not specified in this method, it is useful in certain special cases. The 1000mL may also be used in pipet methods of mechanical analysis of soils.

- Both sizes have a round base, approximately 107mm in diameter, to fit into the metal baths generally used for this work
- Calibrated to contain
- Scale is durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Case Qty |
|------------|---------------|----------------|-------------|----------|
| 20023-1000 | 1000 | ±5.0 | 457 | 4 |
| 20023-1205 | 1205 | ±5.0 | 457 | 4 |



KIMBLE® KIMAX® Soil Testing Cylinders
Class B



KIMBLE® KIMAX® Glassware Starter Kits,
Graduated Cylinders

An assortment of popularly sized graduated cylinders from our 20024 series that is ideal for start-up labs and customers who need a variety of cylinders but have limited lab space or glassware needs.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Class B
- Single metric scale, with bumper
- The pack consists of 5 cylinders (one each) in sizes of 10, 25, 50, 100 and 250mL
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Height (mm) | Stopper Size | Graduation Intervals (mL) | OD (mm) | Case Qty |
|----------|---------------|-------------|--------------|---------------------------|---------|----------|
| 20024-01 | 10 | 78 | 1 | 10 | 50 | 1 |
| | 25 | 108 | 5 | 25 | 66 | 1 |
| | 50 | 130 | 6 | 25 | 81 | 1 |
| | 100 | 174 | 7 | 50 | 102 | 1 |
| | 250 | 213 | 9 | 50 | 128 | 1 |

PIPETTS

The most commonly used volumetric pipet in general laboratory work.

- Color coded
- This unserialized pipet is supplied with a Certificate of Accuracy tied to the batch number printed on the glass
- Now packaged in smaller case quantities to better service general laboratory needs
- Designed from ASTM Specification E969, Class B requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Overall Length (mm) | Color Coding of Band | Case Qty |
|-----------|---------------|----------------|---------------------|----------------------|----------|
| 37001-1 | 1 | ± 0.012 | 310 | Blue | 6 |
| 37001-2 | 2 | ± 0.012 | 335 | Orange | 6 |
| 37001-3 | 3 | ± 0.02 | 350 | Black | 6 |
| 37001-5 | 5 | ± 0.02 | 365 | White | 6 |
| 37001-10 | 10 | ± 0.04 | 400 | Red | 6 |
| 37001-20 | 20 | ± 0.06 | 505 | Yellow | 3 |
| 37001-25 | 25 | ± 0.06 | 505 | Blue | 3 |
| 37001-50 | 50 | ± 0.10 | 545 | Red | 3 |
| 37001-100 | 100 | ± 0.16 | 550 | Yellow | 3 |



KIMBLE® KIMAX® Volumetric Pipets
Class B, Batch Certified and Serialized, Color Coded



Designed with small tip openings for chemical laboratory work.

- Calibrated to deliver
- Scale is permanent brown stain fused into uniform bore tubing without etching
- Pipet is graduated to a base line which is on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet

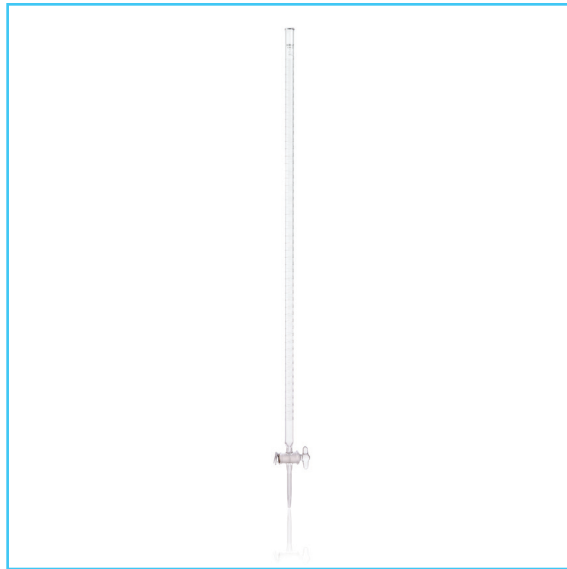
| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Overall Length (mm) | Color Code of Band | Case Qty |
|-------------|---------------|----------------|---------------------------|---------------------|--------------------|----------|
| 37020-110 | 0.1 | ± 0.005 | 0.01 | 300 | White | 12 |
| 37020-1110 | 1 | ± 0.02 | 0.1 | 350 | Red | 12 |
| 37020-11100 | 1 | ± 0.02 | 0.01 | 350 | Yellow | 12 |
| 37020-2 | 2 | ± 0.02 | 0.1 | 350 | Green | 12 |
| 37020-5 | 5 | ± 0.04 | 0.1 | 350 | Blue | 12 |
| 37020-10 | 10 | ± 0.06 | 0.1 | 350 | Orange | 12 |
| 37020-25 | 25 | ± 0.10 | 0.1 | 400 | White | 12 |
| 37020-50 | 50 | ± 0.16 | 0.2 | 500 | None | 8 |



KIMBLE® Mohr Pipets
Color Coded, Class B



BURETS



KIMBLE® KIMAX® Buret with LUBRI-FLO® Stopcock Barrel
Class B

KIMBLE® KIMAX® Buret Replacement Parts
Class B

Used in general purpose volumetric analysis and titrations where Class B tolerances are appropriate.

- Funnel fill style buret
- Replacement 2mm straight bore PTFE stopcock plug is 821001-0002
- Easy-to-read durable black ceramic enamel scale
- Ref: ASTM Method D974

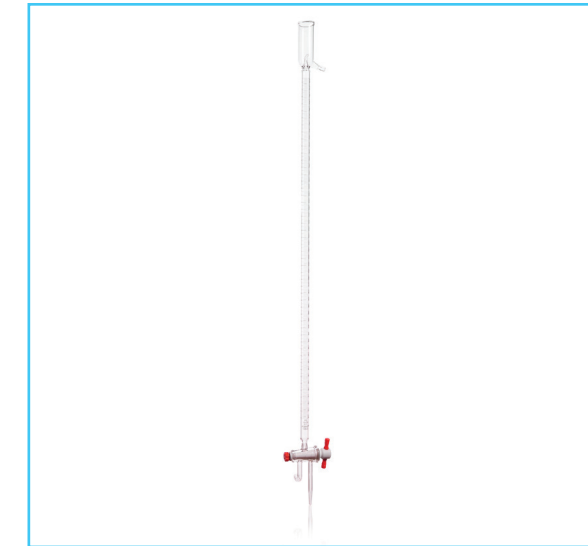
| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Overall Length (mm) | Closure Size | Case Qty |
|-----------------------|---------------|----------------|---------------------------|---------------------|--------------|----------|
| PTFE Stopcock | | | | | | |
| 17026F-2 | 2 | ±0.10 | 0.1 | 738 | — | 1 |
| 17026F-10 | 10 | ±0.04 | 0.05 | 518 | 13mm | 1 |
| 17026F-25 | 25 | ±0.06 | 0.1 | 571 | 13mm | 1 |
| 17026F-50 | 50 | ±0.10 | 0.1 | 738 | 16mm | 1 |
| 17026F-100 | 100 | ±0.20 | 0.2 | 765 | 20mm | 1 |
| Glass Stopcock | | | | | | |
| 17026-50 | 50 | ±0.10 | 0.1 | 738 | 16mm | 1 |

| Cat. No. | Capacity (mL) | Graduation Intervals (mL) | Tolerance (mL) | Overall Length (mm) | Case Qty |
|--|---|---------------------------|----------------|---------------------|----------|
| LUBRI-FLO® Stopcock Barrel Only | | | | | |
| 17026G-50 | 50 | 0.1 | ±0.10 | 738 | 1 |
| 821001-0002 | Size 2 Straight Bore Stopcock Plug, PTFE, Plug Size 11/25 | | | | 1 |

Used in general purpose volumetric analysis and for repeated titrations where Class B tolerances are appropriate.

- Both the filling and overflow tubes accept 1/4 inch ID flexible tubing
- Filled through a self-lubricating, chemically-resistant PTFE stopcock plug
- Easy-to-read durable black ceramic enamel scale
- Ref: ASTM Method D1744
- Designed from ASTM Specification E287, Class B requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Capacity (mL) | Tolerance (mL) | Overall Length (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|---------------------|---------------------------|----------|
| 17051F-10 | 10 | ±0.04 | 515 | 0.05 | 1 |
| 17051F-25 | 25 | ±0.06 | 577 | 0.1 | 1 |
| 17051F-50 | 50 | ±0.10 | 735 | 0.1 | 1 |
| 17051F-100 | 100 | ±0.20 | 765 | 0.2 | 1 |



KIMBLE® KIMAX® Auto Fill Auto Zero Burets, Barrel
Class B

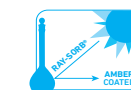
RAY-SORB® burets are used in titrations containing light sensitive analytes

- Funnel fill style buret
- Less than 1% transmission below 400nm and approximately 5% transmission from 400-600nm
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP dust cap
- Easy-to-read durable opaque white ceramic enamel scale
- Closure size 16mm
- Manufactured to the specifications found in ASTM E694
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

| Cat. No. | Capacity (mL) | Graduation Intervals (mL) | Tolerance (mL) | Overall Length (mm) | Case Qty |
|-----------|---------------|---------------------------|----------------|---------------------|----------|
| 17033F-50 | 50 | 0.1 | ±0.10 | 738 | 1 |



KIMBLE® RAY-SORB® Straight Bore Buret
Class B



ECONOMY/VALUEWARE

04



FLASKS

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- 58010 series has a tooled neck for a polyethylene snap cap, which is included
- Enlarged top of the cap will protect the neck if the flask is tipped over

| Cat. No. | Capacity (mL) | Tolerance (mL) | Plastic Cap Number | Case Qty |
|------------|---------------|----------------|--------------------|----------|
| 58010-50 | 50 | 0.1 | 3 | 12 |
| 58010-100 | 100 | 0.16 | 4 | 12 |
| 58010-250 | 250 | 0.24 | 5 | 12 |
| 58010-500 | 500 | 0.4 | 5 | 12 |
| 58010-1000 | 1000 | 0.6 | 6 | 6 |



KIMBLE® ValueWare® Volumetric Flasks
Class B

- KIMAX® flask calibrated to contain
- Available with a polyethylene snap cap or glass stopper
- Supplied unserialized
- Made from KIMAX® borosilicate 33 glass

| Cat. No. | Capacity (mL) | Tolerance (mL) | Closure Size | Case Qty |
|-------------------------------|---------------|----------------|--------------|----------|
| Glass Stopper | | | | |
| 58014-10 | 10 | 0.02 | — | 12 |
| 58014-25 | 25 | 0.03 | — | 12 |
| 58014-50 | 50 | 0.05 | — | 12 |
| 58014-100 | 100 | 0.08 | — | 12 |
| 58014-200 | 200 | 0.1 | — | 12 |
| 58014-250 | 250 | 0.12 | — | 12 |
| 58014-500 | 500 | 0.2 | — | 12 |
| 58014-1000 | 1000 | 0.3 | — | 6 |
| 58014-2000 | 2000 | 0.5 | — | 4 |
| Polyethylene Snap Caps | | | | |
| 58008-50 | 50 | 0.05 | 3 | 12 |
| 58008-100 | 100 | 0.08 | 4 | 12 |
| 58008-250 | 250 | 0.12 | 5 | 12 |
| 58008-500 | 500 | 0.2 | 5 | 12 |
| 58008-1000 | 1000 | 0.3 | 6 | 6 |
| 58008-2000 | 2000 | 0.5 | 8 | 4 |



KIMBLE® ValueWare® Volumetric Flask
Class A

CYLINDERS



KIMBLE® ValueWare®
Graduated Cylinders
To Deliver, with Double White Scale

- KIMAX® cylinder calibrated to deliver
- The 10mL size has an enlarged funnel-shaped top for ease of filling
- The 10 and 25mL sizes are comparatively short to provide increased stability
- Scale is durable white ceramic enamel

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 50030-10 | 10 | 0.1 | 137 | 1 to 10 | 10 |
| 50030-25 | 25 | 0.3 | 140 | 3 to 25 | 10 |
| 50030-50 | 50 | 0.4 | 191 | 3 to 50 | 10 |
| 50030-100 | 100 | 0.6 | 256 | 5 to 100 | 10 |
| 50030-250 | 250 | 1.4 | 330 | 10 to 250 | 6 |
| 50030-500 | 500 | 2.6 | 375 | 25 to 500 | 4 |
| 50030-1000 | 1000 | 5 | 460 | 50 to 1000 | 4 |

- KIMAX® cylinder has durable white scale and convenient marking spot
- 10mL size has an enlarged funnel top for ease of filling
- Provided with a detachable, plastic hex base, which provides for compact storage when not in use
- SAFE-GARD™ bumper is supplied with all sizes except the 10mL

| Cat. No. | Capacity (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|-----------|---------------|-------------|---------------------------|----------|
| 50015-10 | 10 | 124 | 1 to 10 | 10 |
| 50015-25 | 25 | 132 | 3 to 25 | 10 |
| 50015-50 | 50 | 180 | 5 to 50 | 10 |
| 50015-100 | 100 | 240 | 5 to 100 | 10 |



KIMBLE® ValueWare®
Graduated Cylinders
Plastic Base, with White Scale



KIMBLE® ValueWare®
Graduated Cylinders
To Contain, with White Scale

The primary function of this TC cylinder is to receive liquids where volumetric calculations are based solely on the volume contained within the cylinder. Among applications, TC cylinders are frequently used as receivers for the condensate from distillation procedures and sedimentation values of precipitates.

- KIMAX® cylinder calibrated to contain at 20°C
- 10mL size has an enlarged funnel top for ease of filling
- Provided with a hexagonal base ground flat for added stability
- Scale and markings are durable, white, ceramic enamel

| Cat. No. | Capacity (mL) | Tolerance (mL) | Height (mm) | Graduation Intervals (mL) | Case Qty |
|------------|---------------|----------------|-------------|---------------------------|----------|
| 50022-10 | 10 | 0.1 | 137 | 1 to 10 | 12 |
| 50022-25 | 25 | 0.3 | 140 | 3 to 25 | 1 |
| 50022-50 | 50 | 0.4 | 191 | 3 to 50 | 12 |
| 50022-100 | 100 | 0.6 | 256 | 5 to 100 | 12 |
| 50022-250 | 250 | 1.4 | 330 | 10 to 250 | 6 |
| 50022-500 | 500 | 2.6 | 375 | 25 to 500 | 4 |
| 50022-1000 | 1000 | 5 | 460 | 50 to 1000 | 4 |

KIMAX® economical cylinders are ideal for use in educational institutions and for many general laboratory procedures.

- TD appears on each cylinder and indicates the cylinder is calibrated to deliver
- Made of sturdy borosilicate glass, with a reinforced top bead, a pour spout and a hexagonal plastic base.
- SAFE-GARD bumpers are supplied with sizes 25 through 100mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling

| Cat. No. | Capacity (mL) | Height (mm) | Graduation Intervals (mL) | Graduation Range (mL) | Case Qty |
|--|---------------|-------------|---------------------------|-----------------------|----------|
| White Scale with Glass Base | | | | | |
| 20025K-10 | 10 | 135 | 0.2 | 1 to 10 | 36 |
| 20025K-25 | 25 | 140 | 0.5 | 3 to 25 | 36 |
| 20025K-50 | 50 | 190 | 1 | 3 to 50 | 36 |
| 20025K-100 | 100 | 255 | 1 | 5 to 100 | 36 |
| 20025K-250 | 250 | 330 | 2 | 10 to 250 | 18 |
| 20025K-500 | 500 | 375 | 5 | 25 to 500 | 12 |
| 20025K-1000 | 1000 | 460 | 10 | 50 to 1000 | 8 |
| 20025K-2000 | 2000 | 520 | 20 | 100 to 2000 | 6 |
| Blue Scale with Plastic Base and Bumper | | | | | |
| 20025H-10 | 10 | 132 | 0.2 | 0.4 to 10 | 24 |
| 20025H-25 | 25 | 138 | 0.5 | 1 to 25 | 24 |
| 20025H-50 | 50 | 185 | 1 | 2 to 50 | 24 |
| 20025H-100 | 100 | 248 | 1 | 2 to 100 | 24 |



KIMBLE® KIMAX® Education Grade
Graduate Cylinders

PIPETS



KIMBLE® ValueWare® Volumetric Pipets
Class A

In use, these bulb pipets should be held in a vertical position and outflow should be unrestricted. The tip should be touched to the wet surface of the receiving vessel and kept in contact with it until emptying is complete. No additional drainage period is allowed.

- Pipets are calibrated to deliver
- Made from KIMAX® 51 expansion borosilicate glass, these pipets are chemical-resistant and intended for laboratory work
- They are marked with large numerals on the bulb, indicating capacity
- Color-coded (ASTM E1273) for ease in sorting and selecting the correct pipet
- Legend is printed with a permanent brown stain
- Supplied unserialized
- Designed from ASTM Specification E969, Class A requirements
- Tempered tops and tips to resist breakage

| Cat. No. | Capacity (mL) | Tolerance (mL) | Overall Length (mm) | Color Coding of Band | Case Qty |
|----------|---------------|----------------|---------------------|----------------------|----------|
| 57004-1 | 1 | 6 | 310 | Blue | 10 |
| 57004-2 | 2 | 6 | 335 | Orange | 10 |
| 57004-5 | 5 | 0.01 | 365 | White | 10 |
| 57004-10 | 10 | 0.02 | 400 | Red | 10 |



KIMBLE® ValueWare® Graduated Pipets

Measuring pipets should be held in a vertical position, and after outflow has ceased, the tip should be touched to the wet surface of the receiving vessel to complete emptying.

- Pipet is calibrated to deliver
- Made from KIMAX® 51 expansion borosilicate glass, these pipets are chemical-resistant and intended for laboratory work
- Scale is permanent brown stain
- Pipet is graduated to a base line, which is on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet
- Designed from ASTM Specification E1293, Style 1, Class B requirements
- Tempered tops and tips to resist breakage

| Cat. No. | Capacity (mL) | Tolerance (mL) | Overall Length (mm) | Color Coding of Band | Case Qty |
|------------|---------------|----------------|---------------------|----------------------|----------|
| 57020-1110 | 1 | 0.02 | 350 | Red | 12 |
| 57020-2 | 2 | 0.02 | 350 | Green | 12 |
| 57020-5 | 5 | 0.04 | 350 | Blue | 12 |
| 57020-10 | 10 | 0.06 | 350 | Orange | 12 |
| 57020-25 | 25 | 0.1 | 400 | White | 12 |

BURETS

- PTFE stopcock
- Polypropylene dust cap included
- Scale is durable black ceramic enamel
- Made from KIMAX® borosilicate 33 glass

| Cat. No. | Capacity (mL) | Tolerance (mL) | Graduation Intervals (mL) | Length (mm) | Case Qty |
|------------|---------------|----------------|---------------------------|-------------|----------|
| 57026F-10 | 10 | 0.04 | 0.05 | 509 | 1 |
| 57026F-25 | 25 | 0.06 | 0.1 | 560 | 1 |
| 57026F-50 | 50 | 0.1 | 0.1 | 728 | 1 |
| 57040K-50 | 50 | 0.04 | 0.1 | 732 | 1 |
| 57026F-100 | 100 | 0.2 | 0.2 | 783 | 1 |



KIMBLE® ValueWare® Funnel Fill Burets

- This KIMAX® buret incorporates a threaded closure, which eliminates accidental dislodging of the stopcock assembly during use
- The graduated tube has a reinforced top and a lower end tooled to provide a precise fit with the PTFE stopcock assembly
- The stopcock should be wetted to facilitate insertion into the glass barrel
- A ground tip fits into lower end of PTFE stopcock
- The short length 25mL size can be stored in most student laboratory drawers
- Made from KIMAX® borosilicate 33 glass
- Polypropylene dust cap included
- PTFE Stopcock

| Cat. No. | Capacity (mL) | Graduation Intervals (mL) | Length (mm) | Color | Case Qty |
|-----------|---------------|---------------------------|-------------|-------|----------|
| 57121H-25 | 25 | 0.1 | 420 | Amber | 1 |
| 57121H-50 | 50 | 0.1 | 725 | Black | 1 |



KIMBLE® ValueWare® Burets
With Threaded Closure



KIMBLE® ValueWare® Volumetric Burets
Class A

These economical and versatile burets are ideal for use in educational institutions and for many general laboratory procedures. Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

- Easy-to-read durable dark graduation scales for 17040K and 17021H
- A KIM-KAP™ dust cap is included with each buret
- The stopcock assemblies for the 17121H and 17021H series burets should be wetted before installation
- Closure size 16mm

| Cat. No. | Capacity (mL) | Graduation Intervals (mL) | Overall Length (mm) | Stopcock Assembly | Case Qty |
|-----------|---------------|---------------------------|---------------------|----------------------|----------|
| 17021H-25 | 25 | 0.1 | 420 | PTFE compression fit | 6 |
| 17121H-25 | 25 | 0.1 | 420 | PTFE threaded | 1 |
| 17021H-50 | 50 | 0.1 | 725 | PTFE compression fit | 6 |
| 17040K-50 | 50 | 0.1 | 738 | Glass | 12 |
| 17121H-50 | 50 | 0.1 | 725 | PTFE threaded | 1 |

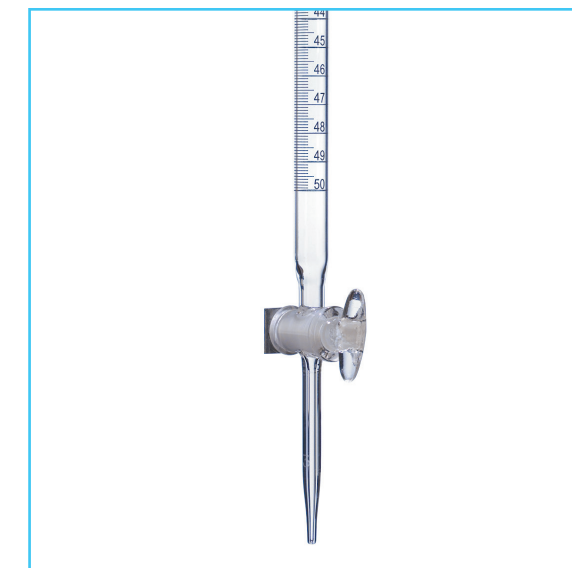
KIMBLE® KIMAX® Burets,
Replacement Parts
Education Grade

| Cat. No. | Capacity (mL) | Graduation Intervals (mL) | Case Qty |
|--|---------------|---------------------------|----------|
| Buret Tip for 17021H and 17121H Burets | | | |
| 17034H-99 | — | — | 6 |
| Buret Barrel without Stopcock or Assembly Tip | | | |
| 17021J-25 | 25 | 0.1 | 6 |
| 17021J-50 | 50 | 0.1 | 6 |

This buret is ideal for use in educational institutions and many general laboratory procedures. Stopcock is a Ts 2. Made from KIMAX® KG-33 borosilicate glass.

- Glass stopcock with metal retaining clip
- Ideal for educational and general laboratory use
- Easy-to-read, black scale

| Cat. No. | Capacity (mL) | Subdivision (mL) | Length (mm) | Case Qty |
|-----------|---------------|------------------|-------------|----------|
| 57030K-50 | 50 | 0.01 | 732 | 1 |



KIMBLE® ValueWare® Straight Bore
Glass Stopcock Burets

CLOSURES & ACCESORIES

05



KIMBLE® Glass Stopper

Stoppers are used with laboratory glassware such as flasks and mixing cylinders.

- All stoppers are solid except Standard Taper stopper sizes 32 and 38, which are hollow
- Made in accordance with ASTM Standard E675
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

| Cat. No. | Stopper Size | Case Qty |
|-------------|--------------|----------|
| 850100-0008 | 8 | 1 |
| 850100-0009 | 9 | 1 |
| 850100-0013 | 13 | 1 |
| 41900R-13 | 13 | 6 |
| 850100-0016 | 16 | 1 |
| 850100-0019 | 19 | 1 |
| 850100-0022 | 22 | 1 |
| 850100-0027 | 27 | 1 |
| 850100-0032 | 32 | 1 |
| 850100-0038 | 38 | 1 |
| 41900R-38 | 38 | 6 |

Stoppers are used with laboratory glassware such as flasks and mixing cylinders.

- PTFE has excellent chemical resistance and resists freezing in ground glass joints
- Remove the colored polyethylene handle from the PTFE stopper before cleaning or exposing to temperatures above 80 °C
- Stoppers of sizes 9 through 22 are solid, and sizes 32 through 38 are hollow
- Designed from ASTM Specification E675

| Cat No. | Stopper Size | Color | Case Qty |
|-----------|--------------|--------|----------|
| 41901R-8 | 8 | Gray | 6 |
| 41901R-9 | 9 | Black | 6 |
| 41901R-13 | 13 | Orange | 6 |
| 41901R-16 | 16 | Blue | 6 |
| 41901R-19 | 19 | Green | 6 |
| 41901R-22 | 22 | Yellow | 6 |
| 41901R-27 | 27 | Red | 6 |
| 41901R-32 | 32 | Grey | 6 |
| 41901R-38 | 38 | Black | 6 |



KIMBLE® Color-Coded PTFE Stopper



KIMBLE® Polyethylene Stopper

Polyethylene stoppers may be used as replacement parts for items that are ground to Standard Taper stopper dimensions.

- These yellow and blue stoppers have a closed bottom
- The enlarged flange is designed to protect the neck if the glass object is tipped over

| Cat. No. | Stopper Size | Case Qty |
|-----------|--------------|----------|
| 28160R-9 | 9 | 6 |
| 28160R-13 | 13 | 6 |
| 28160R-16 | 16 | 6 |
| 28160R-19 | 19 | 6 |
| 28160R-22 | 22 | 6 |
| 28160R-27 | 27 | 6 |

Designed for use with items which have necks specially tooled to proper diameters and contours.

- Polyethylene
- Economical and efficient closures

| Cat No. | Cap No. | Fits Flask Size (mL) | Case Qty |
|----------|---------|----------------------|----------|
| 28150R-2 | 2 | 10, 25 | 6 |
| 28150R-3 | 3 | 50 | 6 |
| 28150R-4 | 4 | 100 | 6 |
| 28150R-5 | 5 | 200, 250, 500 | 6 |
| 28150R-6 | 6 | 1000 | 6 |



KIMBLE® Polyethylene Snap Cap

TECHNICAL DATA

06

FAQ's — You've got questions, we've got answers.

Does my volumetric glassware need to be calibrated prior to use?

If your glassware selection includes a certification of accuracy/calibration document, the calibration information will be included. Otherwise for non-certified volumetric glassware and beyond regulatory requirements under current Good Lab Practices (cGLP) Guidelines (per 21CFR58) Guidelines, performing an initial calibration should be standard practice to help avoid volumetric errors once the glassware is placed into service.

What do the letters "TC" and "TD" represent?

"Volumetric glassware is either calibrated "To Contain" (TC), or "To Deliver" (TD). The temperature "20°C" is also printed on the glassware which indicates the temperature at which the precisely contained volume was calibrated to contain or to deliver.

If a product is calibrated To Deliver (TD), the TD line on the vessel accounts for a larger volume of liquid than stated, due to the smallest amounts of liquid which is left over in the vessel, after the liquid in the vessel has been emptied, due to the inherent properties of liquids and capillary action.

For volumetric flasks and cylinders which are calibrated To Contain (TC) the calibration line indicates the amount of liquid the vessel will hold at that point. For volumetric pipets the TC line is used in dilution practices where the final volume of liquid left over at the tip is expelled.

What do the accuracy classes Class A and Class B mean?

ASTM defines Class A as having the lowest error tolerance; thus, highest level of accuracy. Class B represents a fifty percent higher tolerance for error which means it is less accurate than a Class A designation. This difference can be significant for instrument calibrations, data integrity and error limits of various methods.

When cleaning volumetric instruments, what needs to be observed?

Handling and washing of volumetric glassware (by hand or lab dishwasher) must be carefully done as improper or incomplete cleaning, surfactant use, stains, scratches, abrasion, chemical etch, or mechanical stress can alter calibration values and thus introduce unwanted error. Please refer to the following pages under "Care & Handling of Volumetric Glassware" or contact us at 800.225.1437 (Option 4).

What is the proper calibration procedure for my volumetric glassware?

Some laboratories have pre-defined SOP's or procedures for calibrating volumetric glassware.

A typical procedure involves using a calibrated analytical balance which is first tarred with another vessel which will be filled with water measured using a volumetric vessel. The mass of the volume of water delivered will be used to calculate the final volume delivered using the formula below and the density of water which is 0.99823 g/mL at 20°C.

$$\text{Volume} = \frac{\text{mass}}{\text{density}}$$

Is a certificate available for all volumetric instruments?

All Serialized & Certified glassware ships with a Certificate of Accuracy or Certificate of Calibration. In most cases, certificates are also available upon request. For volumetric flasks, certificates can be downloaded at <http://certificates.kimble-chase.com.mx/index.php>



KIMBLE® VOLUMETRIC GLASSWARE

Cleaning, Maintenance and Usage of Volumetric Glassware

The most crucial objective in cleaning and maintaining your volumetric glassware is to ensure that day-to-day laboratory practices do not cause the glass to lose its calibration or compromise the safety of laboratory personnel. If a volumetric glassware loses its calibration it will no longer contain or deliver volumetric accuracy and precision.

Always inspect glassware before each use and discard if scratched, chipped, cracked or damaged in any way. Glassware stress is not visible to the human eye.

Glassware Cleaning Guidance

Glassware should be cleaned as soon as possible after use to avoid setting and caking of residues.

1. Preliminary rinse

A. Prior to performing the full cleaning procedure it is recommended that a preliminary rinse or soak is performed using organic solvent for non-water-soluble leftovers followed by a water rinse or water for water soluble leftovers. Water rinsing must be done thoroughly if acid will be used later to clean the glassware. Pipets, for example, may be placed in a convenient jar containing a weak antiseptic solution, immediately after use.

2. Cleaning reagents

A. Do not use strong alkaline products and hydrofluoric acid as cleaning agents, they are glass dissolvers and can damage the glassware and eventually cause breakage which can result in injury.

B. Do not use any abrasive cleansers, including soft cleansers (i.e. Bon Ami®, Comet®, Soft Scrub®, etc.), as these will scratch the glass and cause eventual breakage and injury.

C. Before using any cleaning solution, refer to its Material Safety Data Sheet for precautions to be observed during use. Keep your application needs in mind. Organic solvents are acceptable cleaning agents when conditions warrant their use. Some cleaning materials may leave trace residues which can be problematic for trace applications such as chromatography. When glassware is to be calibrated, the final rinsing must be distilled water. If an article is to be dried after cleaning, as is necessary for all vessels marked "To Contain", ethyl alcohol or acetone (American Chemical Society Specification) may be used. Drying may be followed by blowing

clean, dry air into the vessel (or sucking the air through the vessel). Efficient air filters must be provided to remove any particles of oil or dirt from compressed air. Drying should be done in a fume hood.

D. There is a wide variety of cleaning agents available that will remove surface contaminants such as silicone and other organic and biological residues, blood residues and other contaminants that may interfere with trace analyses. These cleaners are available in biodegradable, phosphate-free and chromium-free formulations if desired and can be obtained from laboratory supply houses. Specific contaminants may require specialized cleaning methods, and some are given here:

- i. Permanganate stains** - Use a mixture of equal volume of 3% sulfuric acid and 3% hydrogen peroxide.
- ii. Iron stains** - Use a solution containing one-part hydrochloric acid and one-part water.
- iii. Bacteriological material** - Glassware should be soaked in a suitable disinfectant solution or steam autoclaved followed by cleaning with a suitable agent.

E. Do not soak KimCote® plastic-coated glassware for long periods of time; this will result in shortening the life of the coating. Do not allow used KimCote® plastic-coated glassware to sit unwashed for long periods of time, as this will make cleaning more difficult.

3. Use of cleaning tools or machines

A. If wiping or other mechanical cleaning action is necessary, it should be done gently using non-abrasive cleaners and wiping materials. The use of abrasive materials will damage the glass surface, degrading its inherent strength.

B. Washing machines may be used. Support racks on the washer must be well maintained. The support pins should be coated with a non-abrasive material to prevent metal to glass contact and scratching.

C. For manual washing, use only plastic core brushes that have soft, non-abrasive bristles. Soft, clean sponges or other wiping materials may be

KIMBLE® VOLUMETRIC GLASSWARE

Cleaning, Maintenance and Usage of Volumetric Glassware

used. Do not use these brushes or wiping materials with abrasive cleaning solutions. Keep them clean. Scotch Brite® and similar scouring pads will scratch glass and should not be used.

4. Improper cleaning procedures.

A. Do not place metal or other hard objects, such as spatulas, glass stirring rods, or brushes with metal parts, inside the glassware. This will scratch the glass and cause eventual breakage and injury.

B. Do not place hands inside glassware while wearing any jewelry, particularly diamond rings, as these will score the inside of the glassware and eventually cause breakage and injury.

C. Do not heat glassware to temperatures (>800°F) needed to burn out carbon residues. This will result in the introduction of permanent stresses in the glass that will eventually cause the glassware to break resulting in possible injury.

D. KimCote® plastic-coated glassware should not be cleaned with harsh, chemical grade detergents; use a non-abrasive grade detergent. If using a dishwasher or dryer, avoid temperatures greater than 110°C (230°F). Scouring pads and brushes are not recommended for use on KimCote® plastic-coated glassware.

5. Avoid Impact. Glass will break as a result of impact. Use care when handling to avoid impacting hard objects, such as spigots, other glassware, counter tops, etc.

6. When Heating Uncoated Glassware.

A. Use either low or medium heat settings when using a hot plate. High hot plate settings will cause excessive localized heating of the glassware and will eventually cause breakage and possible injury.

B. Do not heat glassware designated as heavy duty unless recommended by manufacturer. Even though these items have added mechanical strength, they are more susceptible to breakage from thermal shock when heated.

C. Do not allow the contents of the container to boil dry as this may induce permanent stresses that will eventually cause breakage. Discard containers that

have been boiled dry. **DO NOT** evacuate or pressurize glassware unless the conditions are recommended by the manufacturer.

7. Care and Use of KimCote® Plastic-Coated Glassware

A. Do not expose coated ware to dry heat above 110°C (230°F)

B. Do not place coated ware over direct heat or open flames

C. Do not use coated ware on hot plates

D. Steam autoclaving temperature is 121°C (250°F) maximum

E. Freezing temperature is -20°C (-4°F) maximum

F. Coated ware is dishwasher safe if the above guidelines are followed

G. Coated ware is microwavable provided standard microwave safety guidelines are followed

H. Labeling and marking on the coating is permitted

KIMBLE® VOLUMETRIC GLASSWARE

Maintaining and Usage

1. Chemical Compatibility

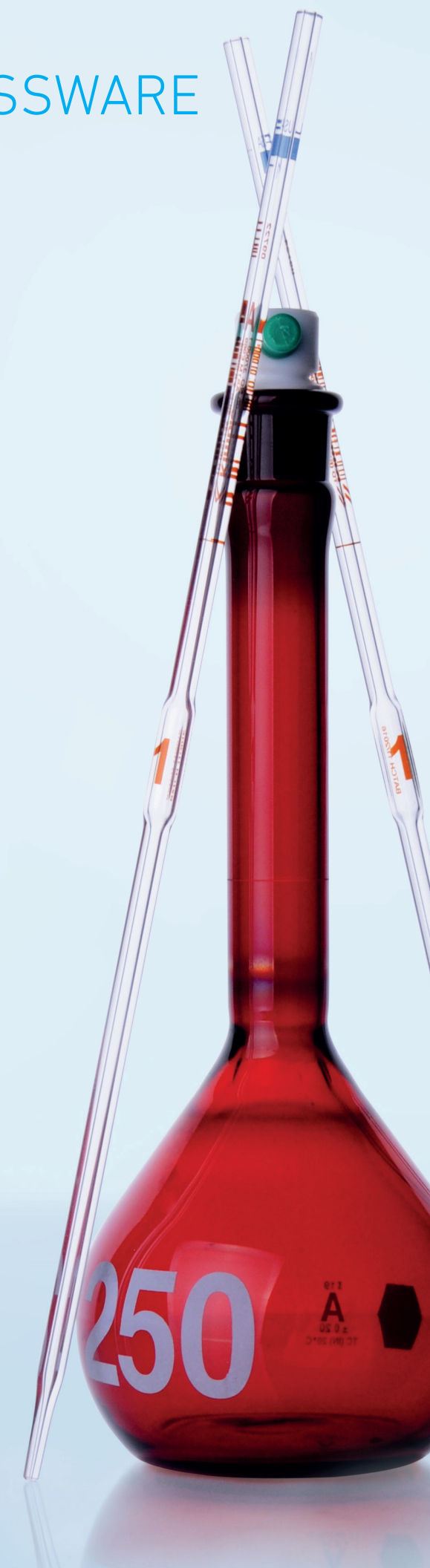
A. Glasses used in chemical apparatus have excellent resistance to acids, except hydrofluoric. Strong alkaline solutions, such as hot caustic solutions, will attack any glass if contact is prolonged. This is true even though a particular glass may not exhibit any visible effect, due to the solubility of the reaction products. Borosilicate volumetric glassware will hold its calibration indefinitely if it is not exposed to hydrofluoric acid; hot phosphoric acid; or strong, hot alkalis, and that it is not heated above 150°C when dry. Dilute detergent solutions, up to about 2% strength, will have no serious effect on the glass unless the glass is exposed for unnecessarily long periods or the detergent is allowed to dry on the glass.

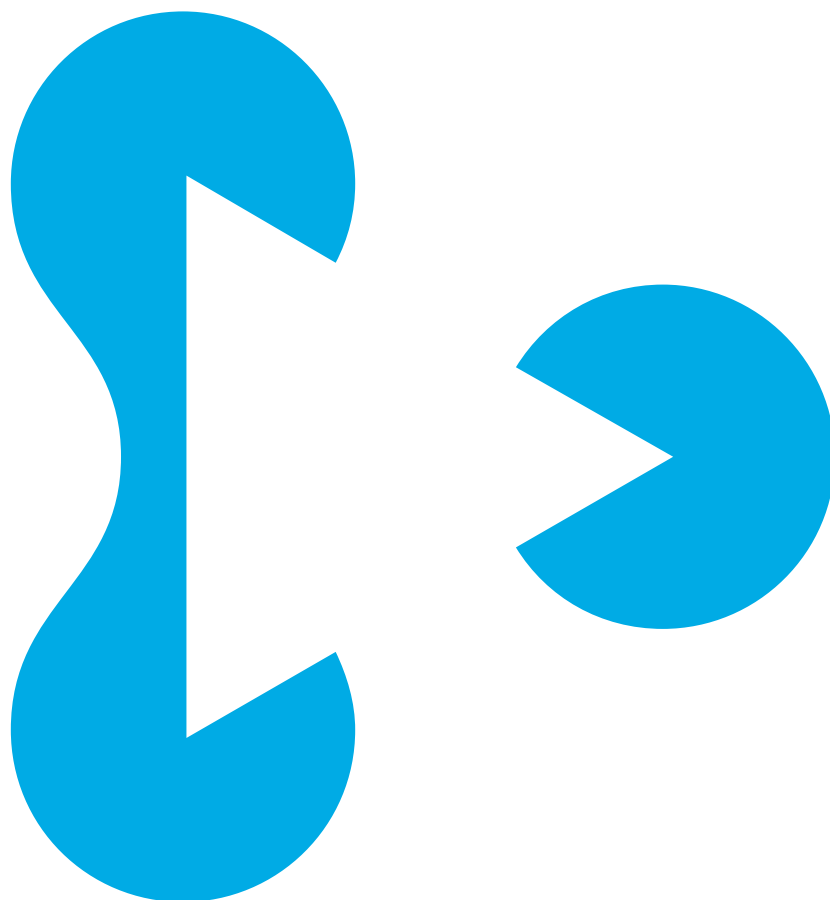
2. Graduations and Markings

A. The scales and inscriptions of many items of glassware are colored by staining a thin layer of the glass. Since the colored portion is of the same composition as the glass object, the resistance to chemical attack is the same as that of the rest of the glass. These fused-on enamels are quite resistant to acids and alkalis. In most cases they should last as long as the piece of apparatus if cared for properly. However, by their nature, they cannot be as resistant as the ware to which they adhere. Consequently, the graduated lines should not be subjected to prolonged immersion in acids or alkalis. Whenever the lines are wetted by reagents, they should be rinsed as soon as conveniently possible.

3. Use of Abrasives

A. Take great care when applying stress (using brushes) or pressure that will introduce glassware stress, scratches and alter surface characteristics. Do not use abrasives on glassware, particularly volumetric ware. The surface will be marred in time, and the resultant scratches may prevent proper drainage or act as resting places for adulterants, which will be difficult to remove. Volumetric glassware is a precision instrument and avoiding these behaviors will minimize out-of-calibration results which can lead to errors, recalibration or replacement.





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