

Quality you can trust!



# BLAUBRAND®

## USP Volumetric Instruments

F I R S T C L A S S · B R A N D

**Accurate measurement instruments for precision analyses for companies audited by US authorities (such as the FDA).** BLAUBRAND® USP volumetric instruments comply with the Class A error limits required by United States Pharmacopeia.

- USP batch certificate supplied, and USP individual certificate or DAkkS calibration certificate available upon request.
- Individually adjusted volumetric instruments; highest precision even for partial volumes.
- Adjustments carried out using computer-controlled production facilities.
- $AQL \leq 0.4$ , i.e.; the error limits are met with a reliability of at least 99.6 %.
- Long service life through the use of high quality blanks and printing colors.
- No permanent volume changes after heating, up to 250 °C.



# USP



## BLAUBRAND® USP volumetric instruments

### Reliability for your analyses

Companies that manufacture pharmaceutical products for the American market and are therefore audited by US agencies such as the FDA (Food and Drug Administration) are obligated to meet the requirements of USP (United States Pharmacopeia).

The current USP describes in Chapter 31 that the Class A error limits specified in the ASTM standards are required for glass volumetric instruments. These error limits are listed in tables for volumetric flasks, bulb pipettes, and burettes. For graduated pipettes up to and including the 10 ml size, the error limits are listed in the text.

#### Error limits

BRAND glass volumetric instruments are manufactured according to current DIN EN ISO standards. Since the construction requirements defined in the DIN EN ISO standards differ from those in the ASTM standards, different error limits result for the individual measuring instruments.

BRAND confirms with the enclosed USP certificates for all USP measuring instruments delivered that the Class A error limits corresponding to the ASTM standards are observed.

#### Adjustment and marking

Every glass volumetric instrument is individually calibrated. For measuring instruments with scales, such as graduated pipettes, burettes and graduated cylinders, flexible screen stencils are used. These stencils can be stretched to match the calibration marks accurately, so that the measuring precision is maintained for all intermediate volumes.

Computer-controlled systems ensure maximum precision in a fully automated production line.

#### Long service life

Thermal stress in the glass blanks are eliminated prior to adjustment.

Therefore, BLAUBRAND® volumetric instruments can be heated up to 250 °C in a drying cabinet or sterilizer without any permanent volume changes.

Specially developed quality printing inks burned in at about 500 °C also ensure a long service life for BLAUBRAND® USP volumetric instruments.



#### Quality management for BLAUBRAND® USP volumetric instruments

The quality management system applied at BRAND and certified to DIN EN ISO 9001 is a combination of process monitoring and random checks. The accepted quality level (AQL) is less than or equal to 0.4.

#### Reference temperature

The reference temperature of 20 °C applies to our volumetric instruments, which are produced according to DIN EN ISO standards. If a volumetric instrument calibrated at 20 °C is used at 27 °C, the volumetric expansion of the instrument results in an additional measurement variation that, at 0.007% (borosilicate glass 3.3) or 0.02% (soda lime glass) is significantly smaller than the error limits for the volumetric instrument. As a result, the reference temperature is of little importance for practical applications. However, if an adjustment or calibration is carried out at a different temperature, the measured values must be corrected accordingly (see DIN EN ISO 4787).

#### Test equipment monitoring

The testing of volumetric instruments is done gravimetrically according to DIN EN ISO 4787. So that calibration can be done rapidly and easily, while minimizing sources of error, BRAND provides detailed testing instructions (SOP) for every type of volumetric instrument, free of charge.

# Class A/AS volumetric instruments with USP certificate BLAUBRAND®

## DE-M



All BLAUBRAND® volumetric instruments kept and used for measurements in legally regulated applications are marked DE-M. The manufacturer BRAND uses this mark to certify the conformity of the instruments with the German Measurement and Calibration Regulation (replaces the previous Calibration Regulation)\*.

BRAND lists all the test equipment used in each lot and individual certificate.

\* as of January 1, 2015  
BRAND will change the mark on volumetric instruments to "DE-M" starting January 1, 2015.

### One batch certificate per packing unit!

All reusable BLAUBRAND® volumetric instruments are supplied with one batch certificate per packing unit of the manufacturer. On request, they are also available with an individual certificate, USP individual certificate or DAkkS calibration certificate.

BLAUBRAND® ETERNA volumetric instruments can be provided with USP individual certificates. Additional sizes or variants available upon request.

All individual and batch certificates are archived for at least 10 years, and are available for download at [www.brand.de](http://www.brand.de).

### USP batch certificate

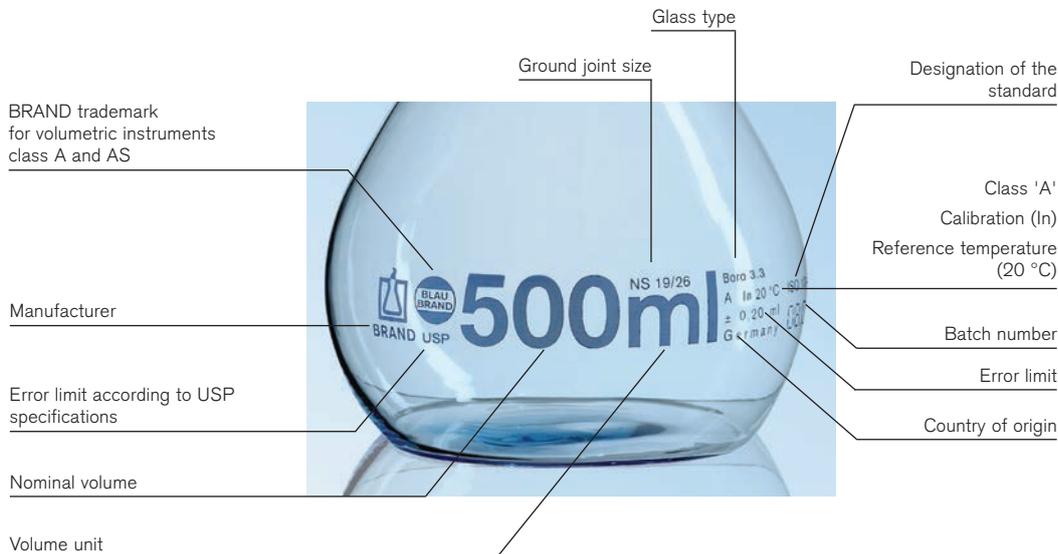
The mean value plus standard deviation for the batch, along with the date of issue are documented on the certificate (batch number: year of manufacture/batch).

### USP individual certificate

The measured volume, measurement uncertainty, and the date of issue are documented on the certificate (individual serial number: year of manufacture/batch/consecutive instrument number).

## Identification of BLAUBRAND® USP volumetric instruments

Example: BLAUBRAND® volumetric flask, USP, class A



# Ordering Data – BLAUBRAND® USP volumetric instruments

## ① Bulb pipettes, 1 mark, class AS, USP batch certificate

Capacity ml	Error limit ± ml	Cat. No.
0.5	0.005 USP	306 01
1	0.006 USP	306 02
2	0.006 USP	306 03
3	0.01 USP	306 05
4	0.01 USP	306 06
5	0.01 USP	306 07
6	0.01 USP	306 08
7	0.01 USP	306 09
8	0.02 USP	306 10
9	0.02 USP	306 11
10	0.02 USP	306 12
15	0.03 USP	306 13
20	0.03 USP	306 14
25	0.03 USP	306 15
30	0.03 USP	306 16
40	0.05 USP	306 17
50	0.05 USP	306 18
100	0.08 USP	306 19

## ④ Graduated cylinders, class A, USP batch certificate

Capacity ml	Subdivision ml	Error limit ± ml	Cat. No.
5	0.1	0.05 USP	328 05
10	0.2	0.10 USP	328 08
25	0.5	0.17 USP	328 20
50	1	0.25 USP	328 28
100	1	0.5 USP	328 38
250	2	1.0 USP	328 48
500	5	2.0 USP	328 54
1000	10	3.0 USP	328 62
2000	20	6.0 USP	328 64

## Burets, class AS, USP individual certificate

On request, they are also available with an USP individual certificate. Discover the variety of our BLAUBRAND® burettes and titration systems at [www.brand.de](http://www.brand.de) or at your specialized supplier!

## ② Volumetric flasks, class A, USP batch certificate

Capacity ml	Error limit ± ml	with PP stopper Cat. No.	with glass stopper Cat. No.
5	0.02 USP	369 38	369 68
10	0.02 USP	369 43	369 73
20	0.02 USP	369 45	369 75
25	0.03 USP	369 47	369 77
50	0.05 USP	369 48	369 78
100	0.08 USP	369 49	369 79
200	0.10 USP	369 50	369 80
250	0.12 USP	369 51	369 81
500	0.20 USP	369 52	369 82
1000	0.30 USP	369 53	369 83
2000	0.50 USP	369 54	369 84

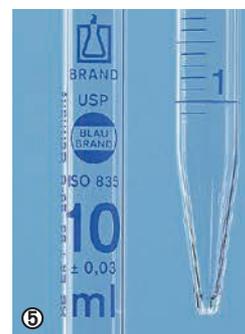
## ③ Volumetric flasks, amber glass, class A, USP batch certificate

Capacity ml	Error limit ± ml	with PP stopper Cat. No.	with glass stopper Cat. No.
5	0.02 USP	374 81	374 61
10	0.02 USP	374 82	374 62
20	0.02 USP	374 83	374 63
25	0.03 USP	374 84	374 64
50	0.05 USP	374 85	374 65
100	0.08 USP	374 87	374 67
200	0.10 USP	374 88	374 68
250	0.12 USP	374 89	374 69
500	0.20 USP	374 90	374 70
1000	0.30 USP	374 91	374 71

## ⑤ Graduated pipettes, Type 2, total delivery, class AS, USP batch certificate

Capacity ml	Subdivision ml	Error limit ± ml	Cat. No.
1	0.01	0.007 USP	275 06
2	0.02	0.01 USP	275 09
5	0.05	0.02 USP	275 11
10	0.1	0.03 USP	275 13

If you require a USP individual certificate so indicate by placing a USP in front of the BRAND catalog number, e.g.: 250 ml volumetric flask, amber glass – **USP 37489**



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California Residents: For more information concerning California Proposition 65, please refer to [www.brand.de/calprop65](http://www.brand.de/calprop65)

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