

# Viscosity Standards

A convenient way to verify the calibration of your Viscometer/Rheometer. Standards are Newtonian and available as either silicone or oil. Silicone fluids are less temperature sensitive than oil fluids.

AMETEK Brookfield viscosity standards are certified to be accurate within  $\pm 1.0\%$  of the stated viscosity, with certification methods traceable to the United States National Institute of Standards and Technology (NIST). Typically, selecting one or two fluids will provide enough measurement points to verify the calibration of your instrument. All fluids will provide enough measurement points to verify the calibration of your instrument. All Silicone fluids with viscosities of 12,500 cP and below are supplied in 1-liter (2 pint) containers, while those above 12,500 cP are provided in 1/2-liter (1 pint) containers. Each fluid comes with a certificate of calibration. CAP Oil Fluids are available in 150 mL (4 oz) containers.

*Note: AMETEK Brookfield recommends that all fluids be replaced annually.*

## Silicone Viscosity Standards

Used to verify calibration of most AMETEK Brookfield Viscometers/Rheometers.



- Accuracy:  $\pm 1.0\%$  of viscosity value
- Temperature Stability: Excellent
- Recommended for use with AMETEK Brookfield and most other rotational viscometers
- Most economical option
- Customization: Special viscosity values and temperature

General Purpose Silicone Fluids		
Nominal		
Brookfield Part#	Viscosity cP [mPa*s]	Temp °C
5 cps	5	25.0°C
10 cps	10	25.0°C
50 cps	50	25.0°C
100 cps	100	25.0°C
500 cps	500	25.0°C
1000 cps	1,000	25.0°C
5000 cps	5,000	25.0°C
12500 cps	12,500	25.0°C
30000 cps	30,000	25.0°C
60000 cps	60,000	25.0°C
100000 cps	100,000	25.0°C

High Temperature Silicone Fluids			
Nominal			
Brookfield Part#	Viscosity cP [mPa*s]	Temp °C	Temp °F
HT-30000	30,000	25.0°C	77°F
	9,000	93.3°C	200°F
HT-60000	4,500	149.0°C	300°F
	60,000	25.0°C	77°F
HT-100000	18,000	93.3°C	200°F
	9,000	149.0°C	300°F
HT-100000	100,000	25.0°C	77°F
	30,000	93.3°C	200°F
	15,000	149.0°C	300°F

# Special Order Silicone Fluids

For customers needing a nonstandard viscosity or temperature range, our silicone fluids can be modified to meet most requirements.

## Viscosity Blends Calibrated at 25°C (77°F)

- Minimum: 5 cP (mPa•s)
- Maximum: 60,000 cP (mPa•s)
- Blends will be within  $\pm 2.0\%$  of requested value

## Temperature Calibration

- Minimum: 10°C (50°F)
- Maximum: 80°C (176°F)
- Minimum Temperature Increment: 2°C

# Oil Viscosity Standards

Used for specific instruments using cone/plate or Krebs spindle geometry. Certain industries may require use of oil standards.



- Accuracy:  $\pm 1.0\%$  of viscosity value
- Appropriate for use at shear rates greater than 500 sec<sup>-1</sup>
- Recommended for use with cone/plate Viscometers at viscosities above 5,000 cP
- Recommended for AMETEK Brookfield CAP series + KU-3 Viscometers and RS family Rheometers

## How to select a CAP Fluid

- Determine which viscometer is being used: High or Low Torque
- Determine which temperature model is being used: Low (5°C-75°C) or High (50°C-235°C)
- Determine which cone is being used

## CAP Viscometer Oil Fluids (For Calibrating CAP Series cones each spindle has its own fluid)

HIGH TORQUE CAP					LOW TORQUE CAP				
Low Temp 25°C		High Temp 60°C			Low Temp 25°C		High Temp 60°C		
Cone Spindle	Brookfield Part#	Viscosity cP [mPa*s]	Brookfield Part#	Viscosity cP [mPa*s]	Cone Spindle	Brookfield Part#	Viscosity cP [mPa*s]	Brookfield Part#	Viscosity cP [mPa*s]
1	CAP 1L	89	CAP 1H	89	1	CAP 0L	57	CAP 0H	57
2	CAP 2L	177	CAP 2H	177	2	CAP 1L	89	CAP 1H	89
3	CAP 3L	354	CAP 3H	354	3	CAP 2L	177	CAP 2H	177
4	CAP 4L	708	CAP 4H	708	4	CAP 3L	354	CAP 3H	354
5	CAP 5L	1,417	CAP 5H	1,417	5	CAP 4L	708	CAP 4H	708
6	CAP 6L	3,542	CAP 6H	3,542	6	CAP 5L	1,417	CAP 5H	1,417
7	CAP 7L	1,328	CAP 7H	1,328	7	CAP 1L	89	CAP 1H	89
8	CAP 8L	5,313	CAP 8H	5,313	8	CAP 3L	354	CAP 3H	354
9	CAP 9L	21,250	CAP 9H	21,250	9	CAP 5L	1,417	CAP 5H	1,417
10	CAP 10L	236	CAP 10H	236	10	CAP 2L	177	CAP 2H	177

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## Krebs Viscometer Oil Fluids

Brookfield Part#	Nominal Viscosity Krebs Units	Temp °C
KU61	61	25.0°C
KU73	73	25.0°C
KU87	87	25.0°C
KU99	99	25.0°C
KU106	106	25.0°C

## General Purpose Oil Fluids

Brookfield Part#	Nominal Viscosity cP (mPa*s)	Temp °C
B29	34	25.0°C
B200	230	25.0°C
B400	410	25.0°C
B600	710	25.0°C
B1060	1,200	25.0°C
B2000	2,400	25.0°C
B10200	12,000	25.0°C
B21000	20,000	25.0°C
B73000	70,000	25.0°C
B200000	200,000	25.0°C
B360000	420,000	25.0°C

## RS Rheometer Oil Fluids (Calibrated at 25.0°C)

Cone Spindle	Brookfield Part#	Nominal Viscosity cP [mPa*s]	Coaxial Spindle	Brookfield Part#	Nominal Viscosity cP [mPa*s]
RCT-25-1	B41000	41,000	CCT-DG	B200	200
RCT-25-2	B73000	73,000	CCT-40	B2000	2,000
RCT-50-1	B10200	10,000	CCT-25	B10200	10,200
RCT-50-2	B21000	21,000	CCT-14	B73000	73,000
RCT-75-1	B4900	4,900	CCT-8	B360000	360,000
RCT-75-2	B10200	10,200			



## VisCal Kit



Provides the necessary items to verify calibration of your Viscometer/Rheometer

## Plastic VisCal Kit



Provides the necessary items to verify calibration of your Viscometer/Rheometer in a **glass-free environment**

### Includes:

- 600mL Beaker
- 1000ml of Silicone Viscosity Standard (500-12,500cP) in a plastic bottle
- Dispersing Bottle for cleanup
- Trapper Cleaning Agent (available only on shipments within the USA)

### Includes:

- 600mL Plastic Beaker
- 1000ml of Silicone Viscosity Standard (5-12,500cP) in a plastic bottle
- AMETEK Brookfield-designed metal id for anchoring beakers in the temperature bath

*Note: Silicone Viscosity Standards above 12,500 cP are sold in 500mL wide-mouth glass jars.*

## What is Verification?

Verification checks your instrument's performance using known standards (e.g., Brookfield Viscosity Standards). Unlike calibration, no adjustments are made. It's a pass/fail control to ensure the instrument remains within acceptable performance limits between calibrations.

## When to Perform Verification:

- Monthly, weekly, or before critical measurements (Depending on internal SOPs)
- Before each use (For critical tests)

## What is Calibration?

Calibration is a formal procedure that involves comparing the viscometer's readings to known reference materials (Typically certified viscosity standards such as NIST-traceable silicone oils). If the readings are outside the acceptable tolerance range, the instrument is adjusted to bring it back into compliance with manufacturer specifications.

## When to Perform Calibration:

- Annually or according to the site's quality policy
- After any repair or mechanical shock
- When verification fails

## Difference Between Calibration and Verification:

- Calibration involves comparing an instrument's readings to known reference materials (e.g., NIST-Traceable standards). If readings are outside acceptable tolerance, adjustments are made to bring the instrument back into compliance with manufacturer specifications. Calibration ensures accurate and traceable measurements.
- Verification checks an instrument's performance using known standards without making adjustments. It is a pass/fail check to ensure the instrument remains within acceptable performance limits between calibrations.

