

## FLOW CUPS – VISCOSITY CUPS



Viscosity is a key parameter in the behavior of paints both during the manufacturing process and during application. Proper control of this parameter will result in a better use of the paint.

Likewise, knowledge of both the application method and application temperature is required when formulating the paint. Adequate viscosity control at low and high shear rates and assessment of any thixotropy are also necessary during mixing in order to avoid later undesirable effects during application.

### Applications

Calculation of the viscosity by measuring the time needed to flow through an orifice of specific characteristics (seconds).

The Cinematic Viscosity is the relation between the absolute viscosity and the density of a fluid. It is usually called  $\nu$ , consequently  $\nu = \mu / \rho$ .

Some of the units to express it are  $m^2/s$ , stoke (St) and centistoke (cSt), with the following equivalences:  
 $1 m^2/s = 10000 St = 1 \times 10^6 cSt$ . Imagine two different fluids with the same absolute viscosity that flow vertically through an orifice. The fluid with the highest density will flow faster, i.e. the one with the lowest cinematic viscosity.

## UNE ISO cup (UNE EN ISO 2431)



MODEL	TIME (S)	RANGE ( CST)	CALIBRATION OILS
ISO 3	30 - 100	7 - 42	C20
ISO 4	30 - 100	34 - 135	C60
ISO 5	30 - 100	91 - 326	-
ISO 6	30 - 100	188 - 684	C100

## FORD cup (ASTM D1200)



MODEL	TIME (S)	RANGE ( CST)	CALIBRATION OILS
FORD 1	55 - 100	10 - 35	C10
FORD 2	40 - 100	25 - 120	C20
FORD 3	20 - 100	49 - 220	C60
FORD 4	20 - 100	70 - 370	C60
FORD 5	20 - 80	200 - 1200	C200
FORD 6	non-standard	--	--
FORD 8	non-standard	--	--

## DIN cup (DIN 53211-85)



MODEL	TIME (S)	RANGE ( CST)	CALIBRATION OILS
DIN 4	20 - 80	25 - 120	C60
DIN 6	non-standard	--	--
DIN 8	non-standard	--	--

## ZAHN cup (ASTM D4212)



MODEL	TIME (S)	RANGE ( CST)	CALIBRATION OILS
ZAHN 1	20 - 80	5 - 60	C20
ZAHN 2		20 - 250	C60
ZAHN 3		100 - 800	C100
ZAHN 4		200 - 1200	C100
ZAHN 5		400 - 1800	C350

## AFNOR cup (NFT30-014)



MODEL	TIME (S)	RANGE ( CP)	CALIBRATION OILS
AFNOR 2,5	30 - 250	5 - 100	--
AFNOR 4	20 - 300	50 - 1100	--
AFNOR 6	30 - 300	510 - 5100	--

## Accessories



### Tripod Stand for Viscosity cups with level

Support stand with adjustable level.

Auxiliary device to set the measuring conditions specified in the above mentioned standards. Features adjustable feet and bubble level for proper leveling of the viscosity cups in accordance with the standard specifications. Suitable for all previously mentioned cups, except for the dip type.



### Calibration oils

MODEL	RANGE ( CST)
C10	17
C20	34
C60	120
C100	230
C200	460



### Chronometer

Timer / Hour / Alarm

Range: 24 hrs. Resolution: 1/100seg