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Specific Gravity Travel Kit Instructions

Specific gravity is the density of the stone relative to the density of water. The specific gravity of water is 1. If a stone has a specific gravity is 3.95, then the stone has a density that is 3.95 times greater than the density of water.

The kit fits stones up to about 50 ct or approximately 25 x 25 x 15mm and has reasonable accuracy down to .33 ct.

Tips for getting an accurate reading:

1. Make sure your table is very stable! Stability is critical to getting an accurate reading. Working on a shaky table will make getting a good reading impossible.

2. Use distilled water.
3. Make sure your stone is clean.
4. Be sure your stone is dry. Obtain air weight first, then the water weight.
5. The suspension plate must not be touching anything other than the scale platform for the weight to be accurate.
6. Use a calculator.

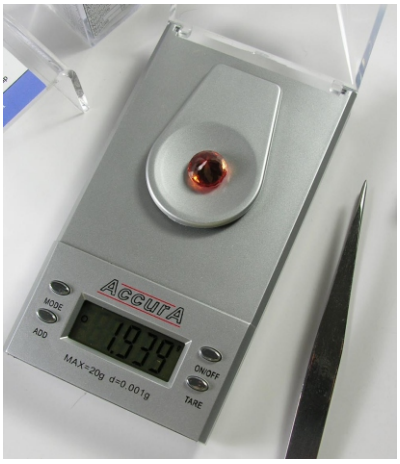
Weigh Stone in Air

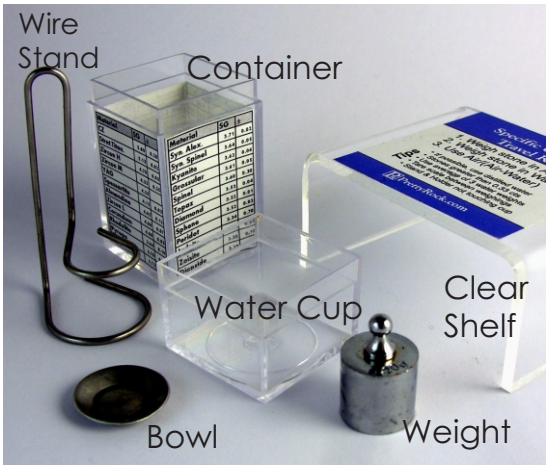
There is no levitation or magic carpets involved. Instead it is called "weigh in air" to contrast it with the next step which is "weigh in water."

1. Turn scale on and wait for the reading to go to zero. Set mode to carats. If it does not go to zero, press the tare button on the scale.

2. Put your clean, dry stone on the scale.

3. Record the weight of the stone. We suggest you take each measurement 3 times and average your results.





Weigh Stone in Water

1. Place clear shelf over scale with the shelf's back edge lining up with the back edge of the circular depression in the scale's weighing platform.

2. Slip wire stand holder into empty water cup. Place base of wire stand under the clear shelf, on scale. The water cup should be on top of the clear shelf. Place the bowl on the wire stand (might not be needed for larger stones.)

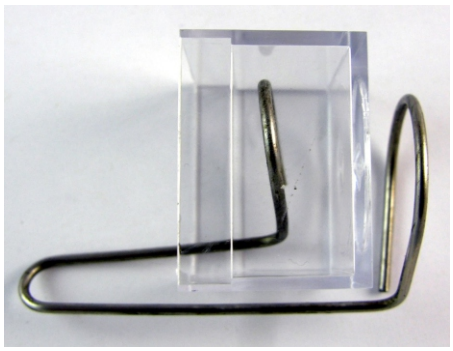
3. This is the fiddly bit. Arrange the wire stand so that it is not touching either the water cup or the clear shelf. You might need to angle either the wire stand or water cup. With a little practice, you will be able to do this quickly.

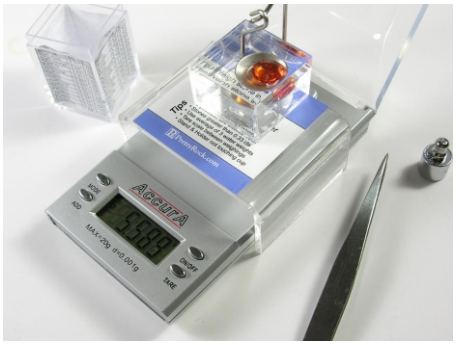
4. Carefully fill the water cup with water.

5. Turn scale on and wait for the reading to go to zero. Press tare button on the scale. Set mode to carats

6. Gently place your stone on the holder in the water, so that the stone is completely submerged and suspended. Give the setup and the water some time to stop moving or shaking. Tap away any air bubbles.

7.Record the weight of the stone. We suggest you take each measurement 3 times and average your results.





Specific Gravity Formula

Take the air weight of the stone and the water weight of the stone and put them into the formula shown below.

$$\frac{(\text{AIR WEIGHT})}{\text{AIR WEIGHT}) - (\text{WATER WEIGHT}} \qquad \frac{(1.50)}{(1.50) - (1.12)} = \text{The Specific Gravity equals } 3.95.$$

For Example: If the air weight is 1.50 carats and the water weight is 1.12 carats then the formula will be as above.

Don't like math? Use our online calculator: **http://www.prettyrock.com/specific-gravity-calculator.htm**

Gem	SG
Assembled Stone	Any
GGG (Gadolinium Gallium Garnet)	7.05 +.04 - .10
Cassiterite	6.95 ± .08
Wulfenite	6.75 ± .25
Cuprite	6.14 + .01 -.29
Scheelite	6.00 + .12 - .10
CZ (Syn. Cubic Zirconia	5.80 ± .20
Hematite	5.20 + .08 -.25
Strontium Titanate	5.13 ± .02
Pyrite	5 ± .10
Zircon	4.70 +.03 -.80
YAG (Yttrium Aluminum Garnet)	4.55 ± .05
Gahnite	4.55 + .09 - .15
Barite	4.5 + .10 - .20
Smithsonite	4.30 +.15
Syn. Rutile	4.26 ± .03
Spessartite (Garnet)	4.15 + .05 - .03
Willemite	4.10 + .08 -.21
Almandite (Garnet)	4.05 +.25 - .12
Sphalerite (Blende)	4.05 + .05 - .15
Gahnospinel	4.01 .4
Syn. Corundum (Flame Fusion)	4.00 ± .03
Syn. Corundum (Flux)	4.00 ± .03
Corundum	4.00 +.10 -.05
Malachite	3.95 +.15 - .70
Rhodolite (Garnet)	3.84 ± .10
Andradite (Garnet)	3.84 ± .03
Shattuckite	3.80 + .34 - 1.27
Azurite	3.80 + .09 - .50
Pyrope (Garnet)	3.78 +.09 -.16
Chrysoberyl	3.73 ± .02
Staurolite	3.71 + .08 - .06
Kyanite	3.68 + .01 - .12
Benitoite	3.68 + .01 - .07
Syn. Spinel	3.64 +.02 -.12
Taaffeite	3.61 ± .01
Grossularite (Grossular Garnet)	3.61 +.12 -.04
Rhodochrosite	3.60 +.10 -.15
Spinel	3.60 +.10 -.03
Topaz	3.53 ±.04
Diamond	3.52 ±.01
Sphene (Titanite)	3.52 ± .02
Rhodonite	3.50 +.26 - .20
Sinhalite	3.48 ± .02
Hydrogrossular (Garnet, Aggregate)	3.47 +.08 -.32
Hemimorphite	3.45 ± .05
Idocrase (Vesuvianite)	3.40 +.10 -.15
Epidote	3.40 + .10 - .15
Zoisite	3.35 +.10 -.25
Peridot (Olivine)	3.34 +.14 -.07
Jadeite	3.34 +.06 - .09
Dioptase	3.30 ± .05
Saussurite	3.30 +.10 -.50
Dumortierite	3.30 + .11 - .04
Kornerupine	3.30 + .05 - .03
Diopside	3.29 +.11 -.07
Axinite	3.29 + .07 - .03
Enstatite	3.25 + .15 - .02
Sillimanite (Fibrolite)	3.25 + .02 - .11
Chlorastrolite (Pumpellyite)	3.20 +.30 - .10
Apatite	3.18 ± .05
Spodumene	3.18 ± .03
Fluorite	3.18 +.07 -.18
Andalusite	3.17 ± .04
Lazulite	3.09 +.08 -.01
Phosphophyllite	3.08 + .05
Euclase	3.08 + .04 - .08
Tourmaline	3.06 +.20 -.06
Amblygonite	3.02 ± .04
Danburite	3.00 ± .03
Unakite	3.00 +.20 -.15
Actinolite	3.00 +.10 -.05
Brazilianite	2.97 ± .03
Phenakite	2.95 ± .05
Datolite	2.95 ± .05
Nephrite (Jade)	2.95 +15 -.05
Aragonite	2.94 ± .01
Pollucite	2.92 +.02 -.07
Prehnite	2.90 +.05 -.10
Prosopite	2.88 +.02 -.19
Shell	2.86 +.03 -.16
Beryllonite	2.82 +.05 -.03
Pectolite	2.81 +.09 -.07
Agalmatolite (Pyrophyllite)	2.80 +.10 -.15
Maw-sit-sit	2.77 +.38 -.31
Turquiose	2.76 +.14 - .36
Lapis Lazuli	2.75 ± .25
Steatite (Talc)	2.75 +.05 -.55
Sugilite	2.74 +.05
Beryl	2.72 +.18 - .05
Labradorite	2.70 ±.05
Calcite	2.70 ± .05
Pearl (Natural and Cultured)	2.70 +.15 - .09
Syn Emerald (Hydrothermal)	2.68 ±.03
Charoite	2.68 +.10 -.14
Scapolite	2.68 +.06 -.08
Quartz	2.66 +.03 -.02
Syn Emerald (Flux)	2.66 +.03 -.01
Coral (Calcareous)	2.65 ±.05
Oligoclase (Feldspar)	2.65 +.02 -.03
Iolite (Cordierite)	2.61 ±.05
Chalcedony (cryptocrystalline quartz)	2.60 +.10 -.05
Orthoclase	2.58 ± .03
Howlite	2.58 - .13
Serpentine	2.57 +.23 -.13
Microcline	2.56 ± .02
Variscite	2.50 ± .10
Leucite	2.48 +.02 -.03
Apophyllite	2.40 ± .10
Obsidian (Natural Glass)	2.40 +.10 -.07
Petalite	2.40 +.06 -.01
Moldavite (natural glass)	2.36 ±.04
Tugtupite	2.36 +.22 -.06
Thomsonite	2.35 +.05 -.10
Alabaster (Gypsum)	2.30 ± .05
Glass	2.30 - 4.50
Sodalite	2.25 ± .10
Natrolite	2.23 ± .03
Chrysocolla	2.20 +.25 -.20
Opal	2.15 +.08 -.90
Ivory (Elephant)	1.85 ±.15
Coral (Conchionlin)	1.35 +.77 -.05
Jet	1.32 ±.02
Plastic	1.30 ± .25
Tortoise Shell	1.29 +.06 -.03
Amber	1.08 +.02 -.08
Copal	1.06 +.04 -.03