

CASTING GRAIN

Imperial has extensive experience in alloying and graining gold, silver and platinum. Our alloys meet all precious metals legal standards, and provide the most advantageous physical properties and colours. We conduct ongoing testing in our own laboratory and casting facility. The grain selection offered corresponds to the best developments from our lab and the most popular choices from our customers.

1. Properties:

"Liquidus" is the temperature at which an alloy is fully liquid. "Solidus" is the temperature at which metal begins to melt.

PART No	Alloy	Liquidus	Solidus	Density
GR10YAMP000	10K Yellow	908°C / 1666°F	881°C / 1618°F	11.28 g/cm ³ (119.0 dwt/in ³)
GR10NGA000	10K Green	858°C / 1576°F	815°C / 1499°F	11.23 g/cm ³ (118.5 dwt/in ³)
GR10RRED000	10K Red	982°C / 1800°F	973°C / 1783°F	11.44 g/cm ³ (120.7 dwt/in ³)
GR10W601000	10K Nickel-White	1073°C / 1963°F	1030°C / 1886°F	11.23 g/cm ³ (118.5 dwt/in ³)
GR14YAMP000	14K Yellow	910°C / 1670°F	870°C / 1598°F	12.79 g/cm ³ (134.9 dwt/in ³)
GR14GNGB000	14K Green	912°C / 1674°F	880°C / 1616°F	14.02 g/cm ³ (147.9 dwt/in ³)
GR14RRED000	14K Red	947°C / 1737°F	937°C / 1719°F	12.92 g/cm ³ (136.3 dwt/in ³)
GR14W601000	14K Nickel-White	1030°C / 1886°F	1000°C / 1832°F	12.73 g/cm ³ (134.3 dwt/in ³)
GR14DWPD000	14K Palladium-White	1094°C / 2001°F	1079°C / 1974°F	14.22 g/cm ³ (150.0 dwt/in ³)
GR18YY08000	18K Yellow	874°C / 1605°F	854°C / 1569°F	15.32 g/cm ³ (161.6 dwt/in ³)
GR18W601000	18K Nickel-White	948°C / 1740°F	916°C / 1680°F	14.71 g/cm ³ (155.9 dwt/in ³)
GR18GNGC000	18K Green	952°C / 1746°F	935°C / 1715°F	15.68 g/cm ³ (165.4 dwt/in ³)
GR18RRED000	18K Red	920°C / 1688°F	880°C / 1616°F	15.10 g/cm ³ (159.3 dwt/in ³)
GR18DWPD000	18K Palladium-White	1074°C / 1965°F	1064°C / 1947°F	15.80 g/cm ³ (166.7 dwt/in ³)
GR19W601000	19K Nickel-White	920°C / 1688°F	902°C / 1656°F	15.20 g/cm ³ (160.4 dwt/in ³)
GR22YY08000	22K Yellow	979°C / 1794°F	950°C / 1742°F	17.79 g/cm ³ (187.7 dwt/in ³)
GR95WHTA000	95% Platinum-5% HTA	1650°C / 3002°F	1550°C / 2822°F	19.23 g/cm ³ (202.8 dwt/in ³)
GR90WIR0000	90% Platinum-10% Iridium	1790°C / 3254°F	1770°C / 3218°F	21.54 g/cm ³ (227.2 dwt/in ³)
GR95WIR0000	95% Platinum-5% Iridium	1825°C / 3317°F	1800°C / 3272°F	21.49 g/cm ³ (226.7 dwt/in ³)
GR95WRU0000	95% Platinum-5% Ruthenium	1795°C / 3263°F	1780°C / 3236°F	20.70 g/cm ³ (218.4 dwt/in ³)
GR95WCO0000	95% Platinum-5% Cobalt	1765°C / 3209°F	1750°C / 3182°F	20.04 g/cm ³ (211.4 dwt/in ³)
GRSSW000000	Sterling Silver	893°C / 1639°F	810°C / 1490°F	10.40 g/cm ³ (109.7 dwt/in ³)
GRFSW000000	Fine Silver	960°C / 1760°F	960°C / 1760°F	10.50 g/cm ³ (110.8 dwt/in ³)
GRSSWANT100	Anti Tarnish Sterling Silver	867°C / 1593°F	824°C / 1515°F	10.25 g/cm ³ (108.1 dwt/in ³)

2. Recommended Casting and Flask Temperatures:

To fill your flask, you need a superheat from 30°C to 100°C/86°F to 212°F above the liquidus. A general guideline to follow is +30°C/86°F for large pieces, +60°C/140°F for medium pieces and +100°C/212°F for small or intricate pieces. Corresponding flask temperatures of 482°C/900°F, 538°C/1000°F and 593°C/1100°F respectively are also recommended.

	Casting Temperature	Flask Temperature
Large Items	Liquidus +30°C / 86°F	482°C / 900°F
Medium sized items	Liquidus +60°C / 140°F	538°C / 1000°F
Small, intricate items	Liquidus +100°C / 212°F	593°C / 1100°F

3. Physical Properties (White 601 As-Cast)

Part No	UTS (psi)	Hv
GR10W601000	83,000	140
GR14W601000	95,000	185
GR18W601000	100,000	225
GR19W601000	105,000	230

(UTS = Ultimate Tensile Strength
Hv = Vickers Hardness)

We are always interested in hearing your opinion of how our products have performed for your application. Also, contact us should you have any questions, comments or require information regarding Imperial's wide range of gold, silver and platinum products.

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