



### ICS-JEWELRY INVESTMENT

### GENERAL WORKING INSTRUCTIONS

### MIXING WITH A HOBART MIXER

**WARNING:** ALL ICS JEWELRY INVESTMENT PRODUCTS CONTAINS SILICA & CRISTOBALITE. DO NOT BREATHE THE DUST, BREATHING CRISTOBALITE OR SILICA DUST CAN CAUSE RESPIRATORY DISEASES . SEE MATERIAL SAFETY DATA SHEET FOR DETAILED INFORMATION.

### ICS

6915 Louis Sicard street  
St-Léonard, (Québec)  
Canada H1P 1T6

Tel.: (514) 327-6688  
Fax: (514) 327-7275

ics-casting@msn.com

### INVESTING / MIXING CYCLE

#### ➤ Determine weight of Investment Powder & Quantity of mixing water required

- 01 ➤ Determine weight of investment required based upon the volume of the empty flasks minus the volume of the wax trees

*Note: 1 Pound of ICS Jewelry investment mixed at a water powder ratio of 38:100 will fill approximately 21 cubic inches*

*1 Kilogram of ICS Jewelry Investment at a water to powder ratio of 38:100 will fill approximately 759 cubic centimeters.*

- 02 ➤ Determine the quantity of water required - For the Water Powder ratio of 38:100 multiply the total weight of the Investment powder by the following factors for metric or English weights to calculate the quantity of water required to obtain the recommended water powder ratio of 38:100

#### ↪ Metric; Powder Weighed in Kilograms

Multiply total Kilograms by 380 to obtain required amount of water in Milliliters, or multiply total Kilograms by 13.4 to obtain the quantity of water in Fluid ounces.

E.g. For 15 kg of powder X 380 = 5700 ml of Water required

#### ↪ English; Powder Weighed in Pounds

Multiply total Pounds by 172 to obtain required amount of water in Milliliters, or multiply total Pounds by 6.18 to obtain the quantity of water in fluid ounces.

E.g. For 25 lb. of powder X 172 = 4300 ml of water required.

*Note: To increase the strength of the investment you can use a water powder ratio of 37 parts water to 100 parts powder or even lower. The maximum water powder ratio is 39:100.*

### JEWELRY INVESTMENT



#### ➤ Mixing The Investment

- 03 ➤ Pour the water in to the mixing bowl first.
  - Note: The temperature of the water should be between 72-85 °F or 22-29 degrees Centigrade.). Always add powder to water.*
- 04 ➤ Add powder into mixing bowl and mix by hand for 30 seconds to wet all the powder.
- 05 ➤ Continue mixing by machine at medium speed for 2½ to 3½ minutes.
- 06 ➤ Place mixing bowl in Vacuum chamber or bell jar and vacuum for 1½ to 2½ minutes. The investment should rise slightly in the bowl and then drop and come to a roiling boil within 30 seconds
  - Note: Test vacuum pump efficiency by placing 400 ml beaker of cold water (70 °F or 21 °C ) under vacuum. If water does not boil within 20 seconds, the vacuum system is not working efficiently.*
- 07 ➤ Pour investment into flasks and vacuum flasks for 1½ to 2½ minutes maximum.
- 08 ➤ Remove flasks from vacuum and allow to stand a room temperature, minimum of 1 to 2 hours before starting de-wax cycle.



### ICS-JEWELRY INVESTMENT

### GENERAL WORKING INSTRUCTIONS

### FOR DE-WAXING AND BURNOUT

**WARNING:** ALL ICS JEWELRY INVESTMENT PRODUCTS CONTAINS SILICA & CRISTOBALITE. DO NOT BREATHE THE DUST, BREATHING CRISTOBALITE OR SILICA DUST CAN CAUSE RESPIRATORY DISEASES . SEE MATERIAL SAFETY DATA SHEET FOR DETAILED INFORMATION.

### ICS

6915 Louis Sicard street  
St-Léonard, (Québec)  
Canada H1P 1T6

Tel.: (514) 327-6688  
Fax: (514) 327-7275

ics-casting@msn.com

### ■ DE-WAXING & BURNOUT CYCLE

09 ➤ Load flasks into oven or steam de-wax cabinet and begin de-wax and burnout cycle following your normal procedures.

*Note: During burnout and de-wax, do not heat the investment over 1350 °F or 732 °C. Do not allow the temperature of investment to drop, then reheat. If using steam de-wax, do not allow flasks to stand in water.*

10 ➤ When burnout is complete, reduce furnace temperature to pouring temperature and allow flasks' temperature to stabilize before starting to cast.

*Note: As the temperature inside the furnace can vary greatly, it is recommended, if possible, to measure actual temperature of the flasks with thermocouple before casting.*

### ■ FLASK POURING TEMPERATURES

- Flask temperature can vary depending upon many variables, making it difficult to offer any specific temperatures.
- Generally, small, intricate parts will work with a flask temperature of 900 to 1100 °F or 482 to 593 °C.
- Larger, or simple, bulky parts, will require a lower flask temperature of 700 to 900 °F or 371 to 482 °C.
- Rough surface finish and gas porosity are very often caused by high temperature of the flasks and/or metal. If this problem occurs, reduce flask temperature in 50 °F or 10 °C increments, until the problem disappears or the start of non-fill occurs.

### ■ JEWELRY INVESTMENT

