

Hints and Tips

Revised: March 27, 1998

[Return to Flintknapping page](#)

Materials

Heat treating raw material

- Heat treating makes detaching flakes easier from some kinds of stone. Flakes are longer and the flake scar is smoother, more lustrous and may even feel 'soapy'. The color of the stone may change on the outer surface (and sometimes internally too), usually to a redder or browner hue. But the stone also becomes weaker and more brittle.
- Rocks can blowup while being heat treated. This can happen at any time. Usually this isn't dangerous but it can be. Protect your kiln or oven, particularly if it has a glass viewing window, by putting the rocks in a metal container such as a covered roasting pan.
- When heat treating rock, first you must dry the rock or it will blow up, explode like bombs, as steam is suddenly released. An hour at 200 degrees F. has proved sufficient for preforms made from quartz, agate and chalcedony from the surface of the western Mojave desert. Other stone, particularly freshly quarried stone, may require more time to dry. This initial drying reduces moisture content but doesn't eliminate it entirely.
- Raise the temperature gradually. I have found, starting with room temperature preforms up to one inch thick, that an initial oven temperature of 150 degrees F. is OK. After an hour, I raise the temperature 50 degrees F. and hold it there for drying time. After drying, I raise the temperature 50 degrees F. each half hour.
- Lower the temperature gradually. I have found that up to 550 degrees F. just turning off the heat is safe (I use my kitchen electric oven).
- Don't open the oven door until the temperature is below 150 degrees F. or thereabouts. You can check this by turning the oven on to 150 degrees F.; if the heating element or gas flame doesn't come on the temperature is still above 150.
- Not all rock improves with heat treating. Some will be ruined by it. If the heat treated rock's knapping properties don't change the temperature they reached may be too low. If the rock has broken or has little blister-like flakes coming off it (pot lids) it is ruined for knapping. One or more of the following is the likely cause: the temperature was too high, the holding time at max temperature was too long, the temperature rise or fall was too fast, the rock's thickness was too great, the rock was non-uniform or had flaws or impurities in it.
- Before heat treating a large batch of preforms made from unfamiliar stone, experiment with some