

Smokenator 1000



Smokenator™ 1000

Efficient means of converting your Kettle to a
full featured

Smoker

~Patent Pending~

www.smokenator.com

Metric Unit Version- preliminary draft

Congratulations on your purchase of the Smokenator™ 1000. It is the first product of its kind to efficiently convert a kettle barbecue into a smoker, giving you a smoker that exceeds the traditional vertical water smoker in performance and cost.

Features:

Efficient design

Shields food from direct heat radiation.

Ability to add moisture to cooking environment.

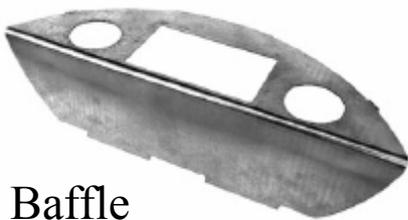
When properly used can cook food up to 30% faster with same results as traditional vertical smoker.

Avoids messy clean up associated with vertical smokers.

With the Smokenator's thoughtful design even a 11.3 kg turkey can be smoked. Using the Smokenator™ you will be able to control temperature and moisture to achieve a final product that is very well smoked and yet moist. The Smokenator™ is well suited for smoking fish, especially salmon, ribs, roasts, tri-tips, chicken, and turkey. The following instructions describe how to set up the Weber and Smokenator to achieve low and slow temperature consistently.

Warning:

All of the Smokenator's surfaces are extremely hot when in use! Always wear protective gloves or mitts when handling the Smokenator when it is in use. Be especially careful if you are removing the steam pan if it contains water or if you have been partying or drinking. Burns are very painful.



Baffle



**Steam
Pan**



Skewer

Items included:

- Smokenator™ 1000 Baffle
- Stainless steel pan
- 30.5 cm skewer for pushing coals.

Setup Procedure

Starting with a clean kettle lid, make sure the interior of the **kettle top** is brushed clean of accumulated smoke flakes. Keep the lower kettle free of accumulated smoke residue, ash and soot. This keeps each smoking session free of harshness .

Arrange the coal supporting grill (1 the lower grill + support rods) so that the base of the baffle fits in between the main rods (1) of the coal supporting grill. The top outer edge of the Smokenator™ (2) is supported by two of the upper cooking grill's support tabs (3). Arrange the baffle so that the bent tabs of the baffle (4) are positioned directly over the kettle tabs (3) that are used to support the cooking grill. This allows the baffle to be lightly secured to the kettle.

Key:

- 1-Lower Grill
- 2-Outer Edge
- 3-Support Tabs
- 4-Kettle Tab
- 5-Water Pan

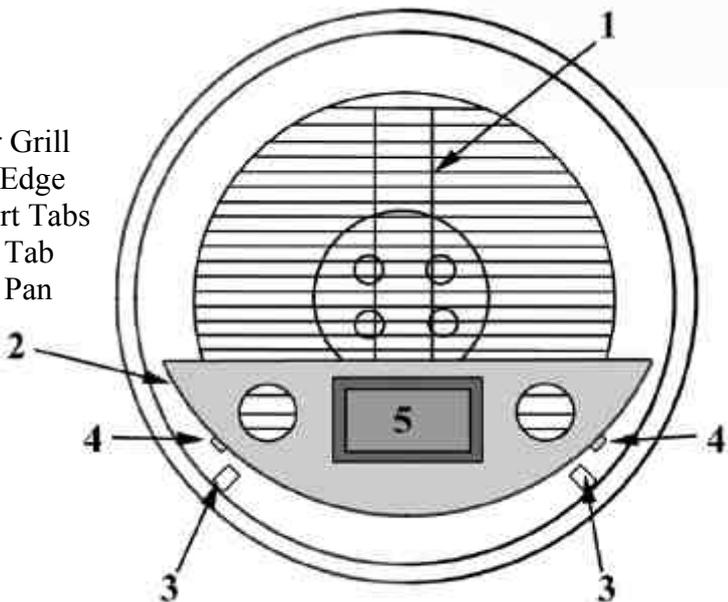


Fig 1

Setting up the Weber vents to cook Low and Slow

The approach to smoking “low and slow” requires setting up the draft restriction on the Weber kettle. As you know the Weber has two controllable vents – a lower and an upper vent. Shown is a photograph of the lower vent system. Take a common pencil, place it in the slot where the arrows are in the photograph, and slide the vane or spoke against the pencil, the result is about a 1 cm gap in each lower vent-**the minimum setting!** I currently use the lower vent fully open and have no problem regulating temperature. The lower vent gap can be varied to compensate for a leaky kettle. You can calibrate the vanes on the Weber Gold’s ash catcher and can regulate temperature via the lower vent. On the less expensive Weber Silver model it’s difficult to set the vents with any precision. Regardless of model, I use the upper vent to control temperature in the kettle. It is the **most reliable**. When dry smoking the lower vent (below) is set very narrow(3-4mm).





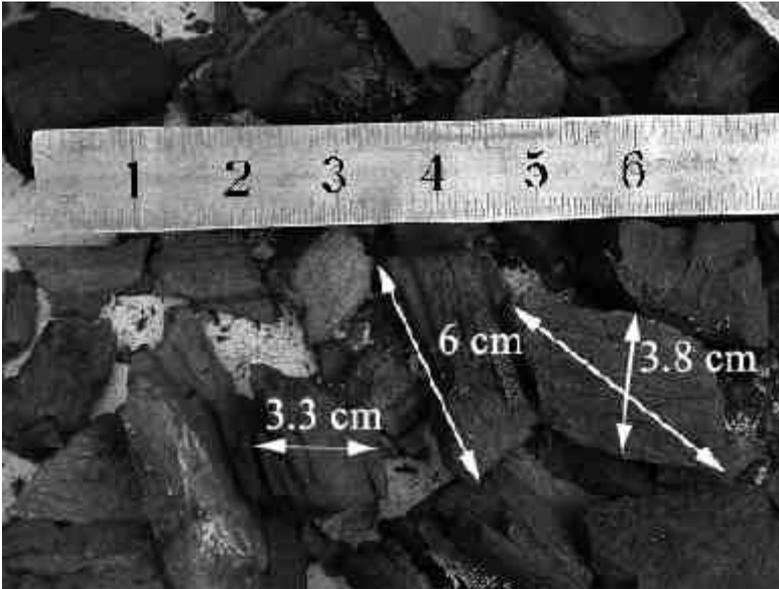
This photo shows the setting of the upper vent system. Charcoal is very sensitive to fluctuations in oxygen. A gap of about .8 cm in the upper vent as shown will maintain a temperature of about 110 °C Dome (**99 °C food support grill temperature**), depending on ambient temperature (21-32 degrees C), humidity, and smaller cooking loads. You will vary temperature by opening and closing this vent. To double the air intake from the .8 cm setting , open the vent to 1.3 cm. Opening to 1.7 cm from the 1.3 cm setting will be half again the 1.3 cm setting and the outer boundary for our management of low and slow. Temperature control can be maintained by using these three settings, and the .5 cm setting.

You will need a thermometer set in the dome vent (you can purchase a Taylor Candy Thermometer for about \$9.00 USD). If during a cook temperature drops by about 6 °C, open up the upper vent about 1-3 mm. If there is no response in 10 minutes, stir the coals and check the condition of the unburned charcoal. If cavity is low on coals (about 5 hours) replenish, figuring 8-10 briquettes are burned in an hour.

When adding un-ignited coals, you can see a drop in dome temperature as the water vapor is driven off and the more volatile components of charcoal ignite. This effect lasts for about 15 minutes, you can compensate a bit if you want, but I usually don't.

The following table shows the relationship between the maximum width of the ellipse (seen between the two arrows in the picture and is the actual opening) and its relationship to the total venting area of the 4 holes. 8 mm vent opening is your starting point; you will notice that, the area of a single hole is 3.88 CM² while the total area for all four is 15.52 CM². The start off of 8 mm open is a percentage open of about 25% of total area. Once you discover how your kettle works, you can whittle gages to get you to certain temperatures. Table shows you what settings to use for doubling or halving.

Width of the ellipse	CM ² Area of One Circle	CM ² Area of four circles	Percent Open
2 mm	0.09	0.36	2.27%
3 mm	0.25	1.00	6.34%
5 mm	0.45	1.80	11.53%
6.4 mm	0.68	2.72	17.53%
8 mm	0.94	3.76	24.21%
0.95 cm	1.22	4.88	31.42%
1.11 cm	1.52	6.08	39.12%
1.27 cm	1.83	7.32	47.15%
1.43 cm	2.15	8.60	55.53%
1.60 cm	2.49	9.96	64.12%
1.74 cm	2.83	11.32	72.95%
1.90 cm	3.17	12.68	81.87%
2.06 cm	3.53	14.12	90.94%
2.22 cm	3.88	15.52	100.00%



Charcoal Briquettes or Lump Charcoal?

I did all of the original testing with Kingsford Charcoal. Kingsford is a very consistent product from bag to bag and is available in most places. It's a decent product that is formulated to start fast and provide enough heat for one decent grilling session. It works pretty good for low and slow cooking. The biggest complaint about it, is the issue of purity. Kingsford is an admixture of carbon made from wood, and processed mineral char to form nearly pure charcoal, sawdust, sodium nitrate (for easy ignition) and some starch to hold it all together.

Lump charcoal is used by many experienced BBQ Chefs, for the simple reason that it is pure wood charcoal derived from hardwood. I have found the best way to burn it in a controlled manner is to break it up. The goal is to make as many pieces close to the size of a briquette, or 5 cm x 5 cm x 3.8 cm. These pieces are laid down on the coal support grill, with smaller chips and wood chunks layered on top of this first layer. In my personal experiments, the breaking up the lump in this manner makes for plenty of surface area to ignite creating the environment for an even and consistent burn rate. Using lump charcoal with the Minion method expect burns that last 5 to 6 hours.

Long Cook Times- Set Up and Temperature Management

Testing has shown that loading up the Smokenator box will fuel a cook of about 6 hours, if dome temperature is kept near 110 degrees C. This six-hour time is valid for briquettes and varies for lump charcoal. The idea was introduced by Ray Minion on The BBQ Forum.

The concept is simple:

- * Pack the Smokenator to the maximum with up to 60 charcoal briquettes (50 work just fine) or your processed lump charcoal plus about 144-290 g of wood.
- * Remove about 12 briquettes and light them in a chimney starter (never use petroleum based charcoal starter fluid, it will put a foul taste in your food). When they are about three quarters lit (15-20 minutes).
- * Set them back into Smokenator.
- * Use skewer provide to arrange coals.
- * Set the water pan in place-fill; with water.
- * **Set food support grill in place if not doing a turkey.**
- * Put kettle lid in place, set the upper vents to 8 mm.
- * Let the kettle come up to temperature.
- * Place the food on the grill, once Dome temperature is up to 104 - 110 °C. Food support temperature is about 99 °C
- * Set your food on the grill, cover. **Upper vent opposite the Smokentor.**
- * **Make sure your upper vent is set to 8 mm!** This is a critical setting and the start point.

For instance, if four chicken halves and two racks of ribs on the Hovergrill and the product is 10 degrees C are set in the kettle, fully expect the temperature **not** to stay at 110 °C Dome at the beginning of the cook!

Dome temperature will probably drop to 82 or 88 degrees C. In this situation you can take no action and let the meat absorb the heat, which will take about 60 to 90 minutes. Or you can open the vent to 1.3 cm opening (a doubling of vent surface area) which will raise temperature some. Do remember to watch the temperature after each adjustment until you know your kettle and how it responds. **All temperature management is done with the dome temperature! Food support grill temperature is 6 to 12 °C less than Dome temperature relatively speaking.**

Critical Point: When vents are set at 8 mm and Dome temperature is 110-116 deg C the water will be simmering-not a vigorous boil. Until you understand and are familiar with your tools, and how fast water evaporates, quickly check the water level every 30 minutes. This is entirely precautionary, at the .8 cm – 1 cm setting water will last about 70 to 90 minutes. Opening up the upper vents increases heat production and also evaporates the water faster! (With the Weber Smoky Mountain it is advised to check the water every 90 minutes. This smoker has a huge water reservoir!)

It is my observation that after about 1.5 to 2 hours smoke production will decrease with the Minion Method. I find that stirring the coals will usually help smoke production, then when this doesn't work, I add more wood to keep a light blue smoke venting from the dome.

I strongly advise that about every hour you tend to the coals, open the kettle lid, use the skewer and shift the coals. This ultimately means a more even and controllable temperature. The first hour the box is still very full, but you knock the ash off and keep surface area exposed for air. At about 4 hours, if you have a one touch system sweep the ash out of the kettle. This can be done with the lid closed.

Many people worry about lifting the kettle lid and losing temperature. I don't worry about it too much. At the most the lid is off only about 2 minutes. The food doesn't lose temperature since it is mostly water. (Put a thermometer into a quart of your hottest tap water and watch how fast the temperature drops in 2 minutes, not very much. Kettle dome temperature recovers in 5 to 10 minutes.)

Shorter Cook Times and More Observations in Temperature management

I would recommend using the Minion method, exclusively, if you cook only for a couple hours closing off the upper and lower vents will save your unburned charcoal and wood chunks for the next time.

You *can* place fewer briquettes in the cavity, for a startup, just make sure there are unlit coals on the floor of the charcoal support grill and proceed as the section on the Minion Method outlines.

The Smokenator set up consumes about 8 to 10 briquettes every hour to keep temperature at 110-116 °C. I would recommend that if you have a very long cook such as a turkey or pork butt, that at 5 hours you refill the cavity with briquettes, add wood chunks according to what you are cooking, beef doesn't need heavy smoke. If you use lump, you might have to probably replenish sooner. If there are less than 8 briquettes by weight in the cavity the temperature will not be sustained and will drop.

Vent setting management.

Let's say that you loaded the kettle with three slabs of cold ribs on the food support grill and the Hovergrill. The dome temperature as mentioned will drop to 82-88 °C. You decide to compensate for time reasons and open the vents to full open. This does a couple of things, first, it increases the amount of steam produced in the kettle and this steam condenses on the colder food warming it. Secondly, this causes more coals to ignite, as temperature moves near 99 - 104 °C, I advise closing vents to 8 mm and choke the fire. If you don't, you risk creating a mass of charcoal generating too much heat and the internal temperature will over shoot. Leaving one with a hot kettle that is slow to cool, and the water pan boiling furiously, as long as water is in the pan humidity is maintained, but water will eventually evaporate and quickly spike the temperature up to over 166-171 °C.

On occasion I have set my upper lid askew , this floods the kettle with air and temperature will cause water to evaporate very quickly 15 minute or so and then temperature spikes to over 171 °C. This results in a hot kettle that cools slowly. It take over 40 minutes to cool down to 110 °C! Just be careful to close the upper lid the right way all the time.

For users who are completely new to temperature management, I recommend you to start a session without cooking any food, and follow the Minion Method to see how your Weber functions. You will be glad you did and your anxiety level will be much less for when you actually do those ribs or roast. The directions outlining the Minion Method start with a fire that is under performing, and letting the upper vent supply the right amount of oxygen to bring the kettle up to the right temperature.

What to expect

The Smokenator creates a huge amount of humidity in the cooking chamber. If you are used to other methods of low and slow, the results in the Smokenator when followed at 110 deg C dome, will be very moist and tender. What you have is a new process to actually determine the degree of juicy-ness. By removing water in the last hour you can place a dryer finish on the outside keeping a juicy interior. If you demand deep interior dryness, then keep water on for ¼ of the cooking time to enhance smoke ring flavor.

Using the Smokenator without water.

In this situation you will have to close the upper vents, down to 3 mm to 5 mm, secondly the lower vents will have to be closed down even more in order to control excess air entering use an 8d nail for a gage to initially set the lower vents.

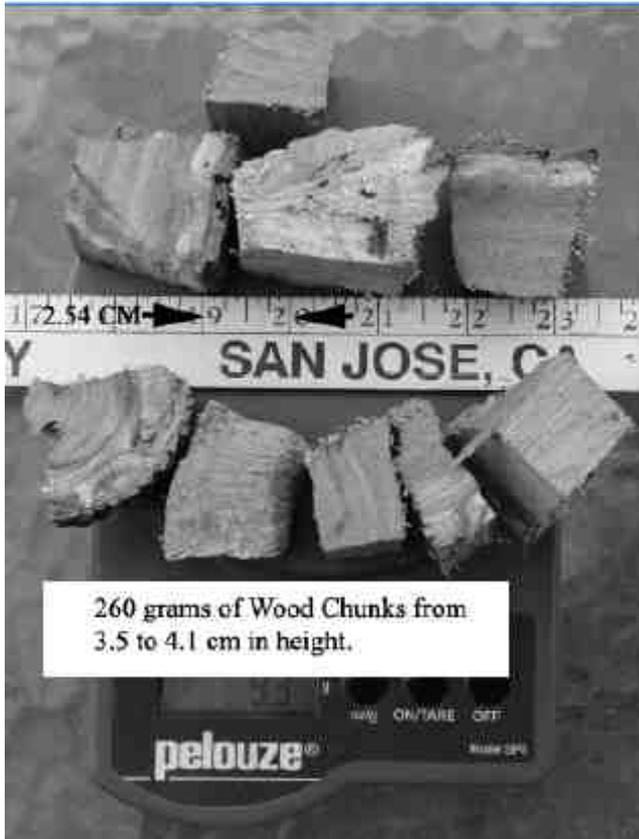
An issue that raises its concern is control. The reason why the Weber and Smokenator is so stable, is due to water absorbing heat energy allowing the vents to be open more, this allows more control.

Without water, the kettle is harder to control, since such a low air intake, ash build up interferes with efficient burning. Some advice, if you are going to do this, let the kettle come to temperature at 6 mm opening. Then using the table use the halving and doubling of openings to control temperature. I really don't bother smoking without water since, the results are superior in terms of tenderness and moisture content of the meat or poultry. I will use dry setting for finish of brisket and pulled pork.

Dry environment settings.

There is no guarantee that the temperatures cited below will be exact, since every kettle is different. Start with the lowest setting first so that you understand how your particular kettle functions at the base line and work up to wider openings.

Lower vent space	Upper Vent Space	Approximate Temperature ° C
3 mm - 1/8"	5 mm - 3/16"	93° C
3 mm - 1/8"	6.5 mm - 1/4"	104.5° C
3 mm - 1/8"	9.5mm - 3/8"	124° C
3 mm - 1/8"	13mm - 1/2"	160° C
3 mm - 1/8"	16mm - 5/8"	185° C



The picture above show the cross section size of my wood chunks. All chunks are 3.5 cm to 4 cm high. I never soak them. I try to avoid using wood chips since they can introduce huge amount of smoke and turn food harsh. Use sparingly until you get a handle on smoke production.

What If I use the initial settings for the kettle and my temperature is too low or too high?

I have had several customers comment that their food took too long to cook. It's my experience that most of this happened because the customer jumped right into low and slow with out doing two things.

- A. Making sure they have a dome thermometer.
- B. They did not test check the settings and resulting temperatures with real live coals and an empty kettle and jumped right into cooking 15 pounds of ribs.

How to calibrate your Weber low and slow.

The Weber kettle cooker with a Smokenator has six things that can vary and cause temperature to misbehave.

Amount of fuel

Amount of Air.

Water filled pan or no water.

Wood chunks.

Ambient temperature and wind conditions.

Let's pretend that ambient temperature is a nice balmy 24 degrees C. You have your Weber in a relatively enclosed space unaffected by any breeze. This eliminates two variables to a constant level.

The set up.

The goal will be to limit all the variables except for one: the air vents will be opened and closed to determine the effect.

Adjust the lower kettle vents to half open and the upper kettle lid vents to **5 mm** open. Adjust the Taylor bi-metal candy thermometer so that the tip extends about 1.3 cm under the kettle lid surface. Using either processed lump charcoal as described above, or briquettes put about 20 to 25 percent into a chimney charcoal igniter (12 briquettes) and bring them to good hot redness.

During the 20 minutes needed to bring the igniter coals to a good burn, pack the Smokenator with the balance (40 briquettes). (You are providing an "unlimited" source of fuel)

When the ignition coals are pretty much red hot and well lit (about 20 minutes), place the entire load into the Smokenator. Push the coals into the sides to allow the pan to fit flush into the Smokenator, place the pan in the Smokenator and fill the pan with water. Place the upper lid over the kettle bottom.

It will take about 10 -15 minutes or so for the water and kettle to heat up. Let the unit come to a stable temperature, let it stay at that temperature for 10-20 minutes so you know that indeed that is the steady state temperature. Make a note of the temperature. Open the lid, fill the pan with water, stir the coals to knock off ash, and put the kettle lid back on. Adjust the upper lid vents to 8 mm and temperature will rise. Wait for 20 to 30 minutes or so and watch where temperature settles to.

Repeat the procedure of knocking the ash off the coals, fill the pan again with water and replace the lid, now open to 1.3 cm Again wait till it is clear that temperature has stabilized.

You might as well play with the Weber and close it to the 8 mm setting and see what happens.

A regular Weber with minimal leaks, set with upper vents at 8 mm and lowers better than 1 cm should steady state with simmering water at about 110-116 °C Dome Temperature. If you have 127 °C then you probably have a leak in the lid - base seal.

I know this sounds tedious to do, but knowing how *your* Weber works will pay off in confidence, give you better timing and will allow you to focus on something other than temperature management. Like consuming your favorite beverage and having fun.

Leaving you rested to enjoy the fruits of your culinary intention.

If you suspect you have a leaky lid to kettle bottom, purchase about four 3.8 cm Binder clips. These work really well as clamps.

link to Minion Method

<http://www.virtualweberbullet.com/fireup2.html#minion>

Placement of a Taylor Bi Metal Candy thermometer.

Model #5911N, cost at Ace hardware is typically less than \$10.00





Turkey

The Smokenator was originally designed to allow a huge turkey to be smoked. The set up for doing a turkey is very simple. Place a medium coating of salt, dry rub or spices on the skin of the turkey. In the case of salt lightly spray some cooking oil spray on the skin, causing the salt to adhere and to provide the smoke a means to transfer flavor into the meat.

Place the turkey breast side down in a small roasting pan that will fit in the kettle. **Raise the pan about 7.6 cm off of the coal supporting grill.** Rotate the turkey 180 degrees every hour and at the end of the second hour of smoking turn the turkey, breast side up. The temperature of the kettle is normally between 107 and 121 degrees C when smoking and using water to keep moisture levels up. A turkey can take upwards of 6 to 8 hours to smoke. After 4 hours the turkey is well smoked, it can be moved to an oven to complete its cooking if you desire. Wrap your smoked bird tightly in foil so it doesn't dry out!



SALMON

Salmon is a wonderful fish that smokes really well. Lay two sheets of foil on the counter and set the fillets skin surface down on the foil. Salt the exposed side well, since having a salty base on the fish brings out the smoke flavor. After coating the fish with salt. Lightly spray with a cooking oil spray. Set it on the **food support grill**.

Salmon cooks rather quickly in the Weber. I generally let the fish remain in the kettle for about 2 hours making sure that the water pan never dries out. I don't overload the kettle with a huge number of coals. Try 20 briquettes or so, and add extra when you see the temperature dropping.

I also keep the Weber heavily stocked with wood chunks to make sure smoke is always present. The result is a pronounced salty-ish smoky salmon. This is not a cold smoke process, which takes a lot longer and is done at much lower temperatures.



Ribs

This picture shows three slabs of ribs cooking on the food support grill and on a Hovergrill. This is roughly 6.8 kg of food. **Most of your cooking is done on the food support grill**, where the temperature is about 99 - 104 °C when the dome temperature is 110 - 116 °C.

In this example ribs have to be rotated about midway of the typical 4 hour cook. There are many outstanding web sites to tell you how to prepare ribs one of the best is the web site at:

www.amazingribs.com,

Craig Goldwyn is one of the best in providing clear and concise directions in doing ribs right.

The Hovergrill allows you to have **547 square inches of area**. This is major capacity for your guests. You can do three slabs of un-trimmed spare ribs or 7 split chicken halves, 4 on the bottom and three on the top. The Hovergrill works great with fish.



Chicken

The Smokenator does chicken right! The results will pretty much astound you with the moistness of the meat, that is if you have ever cooked chicken and it has come out DRY. You know the feeling, you take a bite and all the moisture is sucked out of your tongue. Chewing dry chicken is like chewing a dry sponge.

A pair of chickens either halved or whole, take about four and a half hours at 110- 116 deg C. The pan is **always filled** with water through the entire process. **Note that these birds are in a roasting pan raised up 7 to 8 cm above the coal support grill.** Always check your chicken with a meat thermometer that has been calibrated so that you know it is accurate! Chicken is done at 77 degrees C with the thermometer placed into the middle of the thigh meat. You can also do split chicken halves on the upper grill. There are many spice mixtures you can try with chicken. My favorite is always slipped under the skin of the chicken. The spice soaks into the meat along with the smoky flavor.

Pulled Pork:

Follow your preparation method, rub meat the night before. Set the Weber to sustain 110-116 °C Dome temperature. It's smart to let the meat warm up to room temperature, but that is hard to do, given that these meats can take over 7 to 9 hours to do.

Place the pork butt on the **food support grill**. When the pork in deepest part registers between 74 to 77 °C - about 4 to 5 hours, I foil wrap mine and let the Weber run up to the 177 °C area till the meat thermometer registers 93 °C, about **1 to 1.5 hours**. Then I unwrap the meat and set it back into a dry kettle environment about 30 minutes to let a crust form.

You can also just smoke low and slow till it reaches 88-93 °C. It just takes *a lot* longer. It can be worth it.

Brisket

It is also a tough cut of meat that is cooked the same way up to 74 °C then foil wrapped and brought up to 88 to 93 °C. Cooking times are about the same a little less since a brisket is not as thick. No foil? Expect to cook 7 to 10 hours and be a drier.

My favorite book for sauces, marinades, dry and wet rubs and mops is:

Championship Barbecue Sauces

By Paul Kirk. This book is well written by an accomplished and experienced chef.

Andy's Rub

- 1 cup cane sugar
- ½ cup seasoned salt
- 3 tablespoons garlic salt
- 3 tablespoons celery salt
- 2 tablespoons onion salt
- 1/3 cup Paprika
- 2 tablespoons black pepper
- 1 tablespoons lemon pepper
- 1 teaspoon ground celery seed
- 1 teaspoon dry mustard powder
- 1 teaspoon ground thyme
- ½ teaspoon each of allspice, cayenne, dried chives.

This is another rub but a different skew in the last section of the recipe.

Mitch's Fantastic Barbecue Rub

- ¾ cup cane sugar
- ¼ cup brown sugar
- 6 tablespoons celery salt
- ½ cup seasoned salt
- ¼ cup onion salt
- 2 teaspoon garlic salt.
- 1/3 cup paprika
- 2 tablespoons chili powder
- 2 tablespoons black pepper
- 1 tablespoon cayenne
- 1 teaspoon ground allspice
- ½ teaspoon ground cloves
- ½ teaspoon ground bay leaf

I like this rub since it has sweet *and* salt and some complex spices.

If you have questions please email me at don@smokenator.com or phone me at 408-340-3976 cell

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Good Luck and Thank You for purchasing the

.....*Smokenator 1000*TM