

# Pretzel (Bretzel)

**Yield:** 12 pretzels at 136 g (4.8 oz)

## Dough:

<i>Ingredients</i>	<i>g / ml</i>	<i>Yield %</i>	<i>Baker's %</i>
Bread Flour	1000 g	61.09 %	100.0 %
Compressed Yeast	40 g	2.44 %	4.0 %
Shortening	30 g	1.83 %	3.0 %
Salt	17 g	1.04 %	1.7 %
Dough Conditioner	30 g	1.83 %	3.0 %
Water	520 ml	31.77 %	52.0 %
<b>Total</b>	<b>1637 g</b>	<b>100.00 %</b>	<b>163.7 %</b>

## Lye:

<i>Ingredients</i>	<i>g / ml</i>	<i>Yield %</i>
Water	1000 ml	96.62 %
Sodium Hydroxide	35 g	3.38 %
<b>Total</b>	<b>1035 g</b>	<b>100.00 %</b>

## Method:

- Combine all ingredients, in a mixing bowl. With dough hook mix on first gear for three minutes (pick-up stage). Stop the mixer and put gearshift into neutral. Scrape down the side of the bowl and check the dough consistency. Restart in third gear for seven more minutes. Lightly dust the surface of a workbench and place the dough onto the surface. Cover to prevent the dough from drying out. Bench rest for 10 minutes. Punch the dough down and fold the dough over to release the gases and supply the yeast with new food. Bench rest additional 10 minutes.
- Divide into 136 g (4.8oz) pieces, round and cover. After 5 additional minutes bench rest, shape the dough pieces again into rounds, then making them long, leaving the middle thick. Roll then to about.....(30 inches) and forming them into the typical pretzel shape.
- Freeze uncovered for about 15-20 minutes until the dough is stiff and dry.

- Dip them into the prepared lye solution and place them on a cooling rack, so the excess lye can run off. Place them on a parchment-lined sheet pan. Make a slit into the top, thick part and sprinkle with pretzel salt. Bake without delay in a preheated 230°C ( °F) oven with open damper and no steam. Bake for 12-15 minutes or until the pretzel have a deep brown color.

**Notes:**

- To make the lye, simply dissolve the lye in the water and mix until completely dissolved. Wear gloves and protection.
- The most important step of the process, baking, is where a pretzel develops all of its characteristic attributes. After proofing, the pretzel is transferred through a sodium hydroxide solution, where the surface pH turns alkaline. The alkaline surface causes the starches to gelatinize and gives the outside of the product its characteristic brown, shiny appearance. The pretzel's unique flavor also comes from the combination of the alkaline surface and acid interior. Salting comes next, and pretzels use some of the biggest crystals around. Coarse evaporated salt or rock salt with a pure, white color most commonly is used.

**Guideline:**

- *Sodium hydroxide* is a chemical compound, NaOH, a white crystalline substance that readily absorbs carbon dioxide and moisture from the air. It is very soluble in water, alcohol, and glycerin. It is a caustic and a strong base. Commonly known as caustic soda, lye, or sodium hydrate, it is available commercially in various solid forms, e.g., pellets, sticks, or chips, and in water solutions of various concentrations; both solid and liquid forms vary in purity. (99%) The major use of sodium hydroxide is as a chemical and in the manufacture of other chemicals; because it is inexpensive, it is widely used wherever a strong base is needed. (pH 13-14) The principal method for its manufacture is electrolytic dissociation of sodium chloride; chlorine gas is a co-product. Small amounts of sodium hydroxide are produced by the soda-lime process in which a concentrated solution of sodium carbonate (soda) is reacted with calcium hydroxide (slaked lime); calcium carbonate precipitates, leaving a sodium hydroxide solution.
- *Personal protection:* Always wear safety glasses, have adequate ventilation and wear Neoprene or PVC gloves.
- Sodium Hydroxide is poisonous and dangerous, as well as corrosive and can be fatal if swallowed or inhaled. It can cause burns to any area of contact. It reacts with water, acids or other materials.
- Once all the pretzels were dipped in the lye, discharge the lye immediately and clean work surface with hot water, soap and bleach.