



I BREW MY OWN **BEER**



DIY KIT



ORGANIC MALT

ORGANIC HOPS



HOW TO MAKE YOUR OWN BEER?

CONTENT

- 5 liters demijohn
- 1,2 kg organic malt
- 10 g organic hop
- 7 g yeast
- cotton pouch
- Plastic tube for density meter
- beer densimeter
- thermometer
- stopper
- beer bubbler
- 1 siphon
- funnel
- 5 under bocks 9x9 cm
- 10 labels
- 1 booklet with explanation step by step

YOU WILL NEED:

- glass,
- long kitchen spatula,
- caster sugar,
- water,
- strainer (Chinese type strainer),
- ladle,
- kitchen scale
- ice cubes,
- 2 pots of 5 to 6 L capacity,
- measuring glass of 1 L,
- bottles (see «which bottles to choose?»),
- sterilized kitchen towel,
- mortar or grain grinder.

THE MATERIAL (PROVIDED)



THE FERMENTER:

In the set you will find a large glass bottle, it is the demijohn.

The fermenter will serve as a sterile enclosure in which will proceed the fermentation of your beer.

THE CAP AND THE BUBBLER:

The cap and bubbler allows CO₂ formed during fermentation to escape while preventing contaminating microorganisms from entering the fermenter.

It's also a good indicator of the fermentation state of your beer :

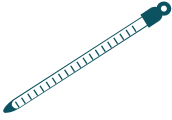
You will see a lot of bubbles escaping from the bubbler at the beginning of the fermentation, then less and less and at the end, it will stop completely.





THE HYDROMETER:

The graduated scale is used to check the fermentation level. It will indicate you when your beer is ready to be bottled. See chapter «How to measure density?»



THE THERMOMETER:

Used to check the temperature of the must when adding the yeast. With its graduated scale, it is used to check the fermentation level. It will indicate you when your beer is ready to be bottled. (To immerse in the must)



THE SIPHON:

Used to extract the must located in the fermentor, leaving the sediments formed by yeast waste formed during fermentation. See chapter «How to extract with a siphon?».



THE BAG TO INFUSE HOPS:

Fabric bag, resealable with its string, which allows to infuse the hops in the must to flavor the beer and give it the desired bitterness.

THE INGREDIENTS (PROVIDED):

THE GRAIN MALT (BIO)

Malt is the main component of beer, just as grapes are for wine. It is generally obtained from barley whose seeds are sprouted, then are more or less roasted. You can also use wheat malt (for white beers), corn or other cereals.



HOPS (BIO):

It is a climbing plant that can reach a height of 10 meters and whose flowers (cones) are harvested, dried and packaged. These cones contain resins and essential oils that give the beer its bitterness and special flavor. You can use several types of hops in the same brew and in different forms (cones or pellets), depending on the chosen recipe. It is advisable to keep your bags in the refrigerator until they are used.

THE WATER:

Water quality is essential for making beer. It must be quite pure, must not contain too much limestone, not too much mineral salts, and of course must not be too chlorinated in order not to alter the taste of the beer. Avoid rainwater or demineralized water, which are often undrinkable. If you use tap water which is very calcareous, first use a conventional water filtration system (Brita ® type).

THE YEAST:

We should say yeasts. These are microorganisms belonging to the family of microscopic fungi. Their Latin name is *Saccharomyces cerevisiae* - literally «yeast of beer sugar»!

Yeasts grow and multiply by consuming sugar, thus producing alcohol and carbon dioxide: this is called fermentation.

Yeasts also produce a wide range of aromatic compounds and much of the aroma comes from the yeast strains used and fermentation conditions (including temperature).

WHICH BOTTLES TO CHOOSE?

First tip: Make sure you have enough empty bottles for the amount of beer you are brewing. For example, if you brew 12 L of beer, you will need at least 16 bottles of 75 cl and 36 of 33 cl, while for 3 L, you will need only 4 of 75 cl and 9 of 33 cl.

Also make sure to sterilize the bottles (see chapter «Hygiene»), checking that they are perfectly clean, ideally at the last moment, just before bottling, in order to avoid contamination by micro-organisms between the time you sterilize them and the time you fill them.

You can re-use beer bottles, or buy new ones, but it is very important to choose a specific type of bottle.

Once bottled, your beer will undergo a new fermentation, the yeasts present in your must will produce CO₂ (in addition to alcohol). The pressure inside the bottles can then be quite important.

To avoid any accident (especially any bottle explosion):

- Do not take plastic bottles!
- Choose thick glass bottles, ideally dark color (light can affect the quality of the beer).
- The easiest way is to buy, or to reuse bottles with a mechanical stopper. Always check that the rubber seal is clean and in good condition, and that the metal ring is not damaged.
- If you have a capping machine (can be found in specialized stores or on the website www.radisetcapucine.com) and new capsules, you can buy or re-use bottles capsule (attention to the size of the bottle's neck and capsules).



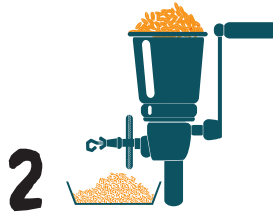
STEP BY STEP

For the detailed steps, refer to the following pages of this booklet, as well as to the attached sheet «Brewing report»



1

Sterilize and rinse all utensils thoroughly.



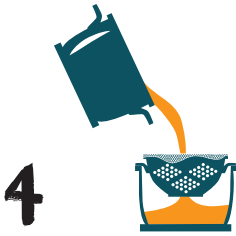
2

Crush the malt.



3

Pour the organic malt into the hot water and cook it.



4

Filter with a strainer through a stamen or sterilized kitchen towel.



5

Boil and add the hops.



6

Filter again, cool quickly before pouring in the demijohn.



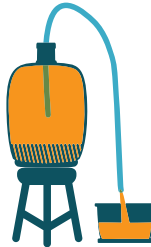
7

Add the yeast and mix.



8

Let it ferment.



9

Clarify leaving the deposit in the fermenter.



10

Empty the deposit and clean it.



11

Pour the beer into the demijohn.



12

Let it ferment.



13

Bottling (not supplied).



14

Let it ferment.



Enjoy !

INSTRUCTIONS FOR USE

We advise you to read this booklet until the end to know the next steps in advance, before starting. We also advise you to use and fill out the brewing report provided in your kit, as your brew progresses ...

So you are ready to brew your own beer, not from a molasses or liquid malt extract, but from malt grains. This type of production is called «all grain brewing».

Thus, you will be able to try this ancestral technique with the recipe suggested in this kit, leaving you free to create your own recipes by changing the malt, the hop (s) or even the yeast as you would like.

PREPARATION AND CLEANING 30 minutes



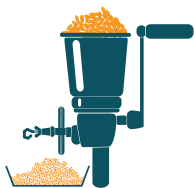
The day before the beginning of the brew, plan to put 2 to 4 bottles of water in the freezer to get ice blocks that will be very useful when cooling your beer before fermentation.



To start it is very important that all the material you use is clean and sterilized. One of the main causes of failure in the production of beer at home is infection with micro-organisms due to insufficient cleaning or sterilization of the utensils. Check that you have all the equipment needed for brewing. See the «Hygiene» chapter for more information.

CRUSHING MALT 15 minutes

Warning, this step is VERY IMPORTANT !!!



It is not enough to boil the malt grains in water and filter to start the fermentation. The malt grain is indeed covered with a fairly thick envelope, so you have to crush it to release its precious content: starch.

The ideal is to use a grain mill, which can be found quite easily in shops or order on www.radiset-capucine.com.

Otherwise, it can be crushed with a pestle and a mortar, a rolling pin or a mixer robot. But the result will not be as effective as with a grain mill.

Be careful, it is important not to make flour because it would give a porridge, thick and sticky dough that will be difficult to filter at the end of cooking.

On the other hand, too much grinding prevents a good extraction of sugars. Keep in mind «a fine muesli with small pieces».

The picture on the right gives an overview of the type of «grind» best suited.



Crush them the same day or the day before brewing, and store the resulting malt in a covered container before use.

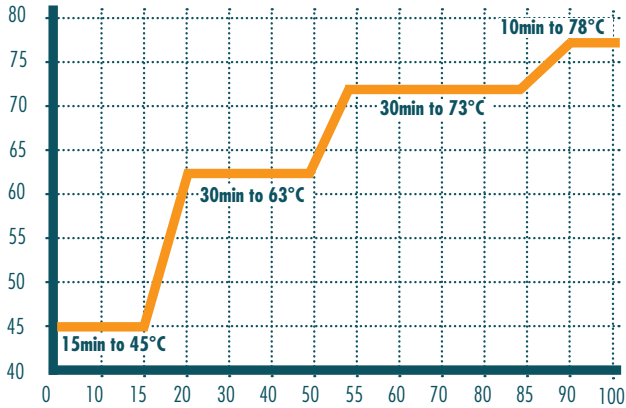
MASHING



Warning, this step is VERY IMPORTANT !!!



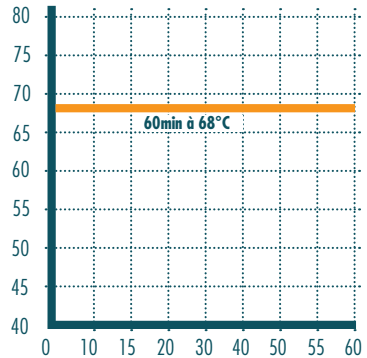
There are 2 methods: multipaliers infusion and single-step infusion
Multipaliers infusion: consists in increasing the temperature in successive stages to optimize the degradation of starch by the enzyme, by increasing the temperature of 1°C per minute.



The single-step method of this kit has the advantage of being easier for beginners while giving very good results.

In your first pot, heat 5 liters of water to 70-75°C, then pour all the crushed malt and mix it well. Reduce to a low heat, and maintain a temperature between 65 and 68°C for one hour, mixing and checking the temperature regularly. The mixture of the crushed malt grains and the cooking water thus obtained is called mash.

It is very important not to exceed the temperature of 67-68°C!



FIRST FILTERING

 30 minutes



This step is intended to separate cooked malt grains and cooking juice (called must) to prepare the aromatization of beer.

Place your strainer over your second pot. Pour the mash in it with a ladle by pressing it in order to get all the juice. Get rid of the pressed cooked malt grain in a large clean bowl. Repeat the operation until all the mash is filtered. A crushed malt that is too fine may clog the filter while a too coarse malt will not allow a good extraction of the sugars.

RINSE THE RESIDUES OF THE MALT

 30 minutes

In the first pot, heat 2 liters of water to 80°C, and pour in the residues set aside in the bowl. Let infuse a few minutes, and repeat the filtering operation as before. It is important to squeeze the residues to get a maximum of must, which is about 5 liters.

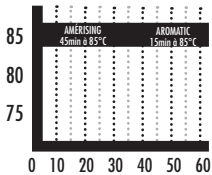
HOPPING

 1 hour



This operation is intended to aromatize the must by infusing successively different hops. In general, a bittering hop will be used during the whole boiling process and an aromatic hop will infuse only at the end, for a short time, so that the aromas are not destroyed by the temperature.

To do this, boil the must by keeping it above 80-85°C. Place the hops 1 (bittering) in the small bag and close it well with the string. Let infuse this bag 45 minutes in the boiling must. Then re-open this small bag, add all the hops 2 (aromatic), close well again, and let stew for another 15 minutes in the still boiling must. At the end of this step, measure the total amount of must, you should get around 4 liters. If you have a lot left, keep boiling for a few more minutes more (after removing the packet of hops). If you have less than 4 liters, you can always add cold water and boil again for a few minutes. The appearance of foam and whitish flakes is normal.



If you want to flavor your beer with flowers (such as hibiscus or elderberry), or fruit (mashed raspberries, cherries, ...) they must be added at this stage.

Then pour the aromatic ingredient directly into the pot, mix well, and continue the boiling step. If you are brewing a Christmas beer, it is also at this stage that spices must be added directly into the cotton pouch at the same time as the second hops. At the end of this step, measure the total amount of must, you should get around 4 liters. If you have a lot left over, let it boil for a few more minutes (after removing the bag of hops). If you have less than 4 liters, you can always add cold water and boil for a few minutes. The appearance of moss and whitish flakes is normal.



SECOND FILTERING

 1 hour

The must obtained may still contain malt crushing residues that may have passed during the first filtering. It will therefore be necessary to make a new filtering through a fine-grained sieve such as Chinese stamen. If you find that the must still has

a pasty texture, make a second pass through a thin cloth, like a kitchen towel (previously boiled). This may take a little longer as the fabric will retain impurities and filtering will be almost drop by drop. But that's the condition for getting the clearest beer possible.

COOLING OF THE MUST



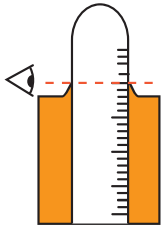
Yeasts are living organisms that are very sensitive to heat and therefore must be fermented at a temperature between 20 and 27°C. It is therefore essential to cool them before adding these yeasts, as quickly as possible in order to reduce the risk of infection. Then fill your kitchen sink with very cold water by adding the ice bottles prepared in advance. Dip the casserole without cold water. Stir regularly and check the temperature with the thermometer.

Just before pouring into the demijohn, vigorously turn the precious liquid in the pan with the spatula, for a few seconds, forming a sort of whirlpool. Then let it rest a few minutes, it will concentrate in the bottom, in the middle of the pan, all the outstanding particles and proteins that may have precipitated during cooking.

Then siphon the contents of the pan (without removing the bottom in the center, residue of the whirlpool) directly in the demijohn. See the chapter «How to extract with a siphon?». It will be more effective than emptying directly from the saucepan to the demijohn via a funnel!

To maximize the reduction in temperature, the siphon hose can be allowed to soak in the icy sink water during siphoning, but be careful not to go below 20°C.

Just before putting your must into the demi-john, draw a little liquid in a bottle (or test tube) high enough that the densimeter floats without touching the bottom.



TO AVOID WASTING YOUR PRECIOUS MUST AT EVERY MEASURE, be sure to sterilize the measuring tube and the hydrometer. You will be able to return the must in the demijohn after measurement. Then measure the graduation visible on the surface of the liquid, above the «meniscus» as shown in the drawing. Do not hesitate to consult the small user guide of your supplied hydrometer. Then enter this density on your brewing report. This will also allow you to estimate your % of alcohol at the end of brewing.

SEEDING



Be careful, it is very important to respect a temperature between 20 and 27°C when you add yeasts. If the temperature is too high, the yeasts die, if it is too low, the fermentation will not be done or will be less successful.

Open the bag of yeast, and of the well-dried funnel, pour in the demijohn with the well dried funnel. Let the yeast reactivate for 15 minutes before stirring the demijohn slightly and close the demijohn..

TO BREW AN IPA

If you are brewing an IPA-type beer (the famous "India Pale Ale ») you have to add the 3rd hops at this stage (this beer flavoring method is called « cold Dry-Hopping »).

Then pour directly the contents of the hops 3 in the demijohn, at the same time as the yeast, mix well, and let infuse during all the time of the fermentation.

FERMENTATION 5 to 7 days



After inserting the bubbler into the rubber stopper, and placing in the demijohn's neck, pour a small amount of water into the bubbler.

Let ferment for 5 to 7 days in a warm place (20-23°C).

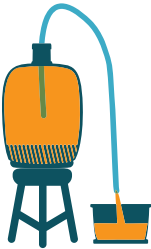
Be careful, a tile floor is cooler than the room temperature. In cold weather, raise the demijohn. The process of the fermentation depends on the ambient temperature.

The lower the temperature is, the longer the fermentation lasts.

Anyway, be careful not to exceed 8 to 10 days.

When no more gas bubbles escape or when the water level in the bubbler remains equal, the fermentation phase comes to the end. But beware, no activity in the bubbler does not necessarily mean that the fermentation is over.

CLARIFICATION 1 to 2 days



When the bubbler stops bubbling, siphon your beer into a clean sterilized container, such as a large plastic bucket or a large pot, taking care not to draw off the whitish sediment (yeast residue) that is deposited in the bottom of the demijohn. See the chapter «How to extract with a siphon?»

Throw away the yeast residue, clean and sterilize the demijohn in which the first fermentation took place (see the «Hygiene» chapter), rinse and pour the beer.

In principle, you can now bottle the beer but it is advisable to keep the beer (before complete fermentation) for another 1 to 2 days in a cooler place (maximum 20°C, ideally 15°C) in the clean demijohn with its clean bubbler (again with water at mid-level).

This is called the second fermentation or clarification. You must also measure the density after clarification to see if you have reached your final density. Do not forget to include this final density on your brewing report.

BOTTLING 30 minutes

When the final density of 1.010 is reached, you can bottle your beer. Draw your must again in a clean container, being careful not to draw off the whitish sediment (yeast residue) that has settled back into the bottom of the fermentation container. You can pass this must one last time through your Chinese or strainer + kitchen towel (well sterilized in boiling water). Measure the quantity obtained. Pour the caster sugar strictly according to the proportion of 8g of sugar per liter of beer for a density of 1.010. For example, if you obtain 4.2 L of must, you will need $4.2 \times 8 = 33.6$ g of sugar in your must.

Mix with a clean spatula to melt and distribute the sugar in the must.

Now pour the beer into bottles (see chapter: «Which bottles to choose?») After checking that there are no drops of water at the bottom. Do not fill to the edge and leave 2 to 3 cm of the bottle's neck.

CAUTION: risk of explosion of the bottles.

If the density of your beer is still above than 1.010 at the end of the fermentation, let it ferment a little longer and measure the density regularly. The amount of sugar to be added before bottling is up to 8 g / L for a density of 1.010, 4 g / L for a density of 1.012, and no sugar at a density of 1.014 and beyond. As a reminder, the beer will also ferment in the bottle, creating CO₂ and therefore pressure.



- Only use new bottles or reusable bottles in perfect conditions. Also, if you use mechanical lids with rubber, make sure that the rubber is in good condition and in case of any doubt, replace it with a new rubber or mechanism (to be found in any good drugstore). Do not touch the seal during bottling.
- Do not rely only on the fermentation time and the bubbles escaping from the bubbler, but measure the final density of your beer as indicated in the recipe. Never add more sugar than indicated during bottling.
- Before bottling, keep the bottles in an isolated room. It is recommended to clean your bottles at the last moment, just before bottling.
- Avoid keeping filled bottles in direct sunlight or near a heat source.



LET STAND  5 to 7 days

Close the bottles and leave to rest in a warm place (20-27°C) for at least 5 to 7 days. In theory, your beer is then ready to be tasted, but we advise you to let it clarify and ripen for 5 to 8 weeks in a cooler place (about 10-15°C) and dark. Your patience will be rewarded because your beer will only be more tasty. Last tip, do not lengthen the bottles, keep them rather standing up.

ENJOY

Fermentation in the bottle (which makes the beer naturally gaseous) gives a deposit of fine sediments from the yeast remaining in the bottle. This sediment is entirely natural and gives the beer its hazy appearance characteristic of unfiltered craft beers. If you prefer to keep your beer as clean as possible, store your bottles standing in the fridge before drinking and serve at 6-8°C.

Then pour your beer gently into the glass without disturbing the sediment at the bottom of the bottle. Cheers !

(Alcohol abuse is dangerous for your health, consume with moderation).



HOW TO SIPHON WITH A SIPHON?

During several fermentation steps and bottling, you have to withdraw the beer, that is to say to take all or a part of the liquid to transfer it from one container to another in order to check the density or to bottle.

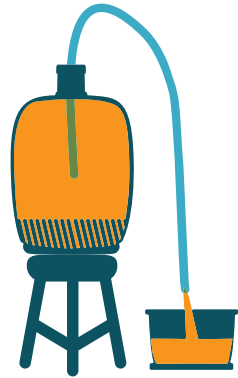
Before use, sterilize the siphon hose with lukewarm water and detergent. Then unroll this siphon hose by extending it so that it does not curl itself.

Then position your starting container (eg the fermenter) high, well above the container in which you will withdraw your beer, for example by placing it on a small table.

Then immerse one extremity of the siphon in the starting container, slightly below the surface of the liquid, and then draw it (with the mouth) from the other extremity of the hose until the liquid reaches this part of the siphon.

Finally let the liquid drain automatically into your second container!

Be careful not to stir or inhale the deposit during this siphoning step, in order not to mix the beer and this deposit. Also make sure the extremity part of the siphon stays under the liquid surface so you do not have to start again and suck it up with your mouth again. And that's it, it's magic!



HYGIENE!

As mentioned above, one of the main causes of failure in home brewing is infection with micro-organisms due to insufficient cleaning or sterilization of the utensils.

It is therefore very important to sterilize all your equipment, but also the demijohn, as well as the bottles in which you put your beer.

If your dishwasher has a high temperature program, this may be enough, but it's best to pour boiling water into your sink and place all your utensils and bottles for about 10 minutes. Once sterilized, let dry all the utensils and bottles.

Of course, it is also important to wash your hands thoroughly before starting to make your own beer! You can use plastic gloves if you are sensitive to detergents.



Avoid the wooden spatula, or terracotta container that does not go in the dishwasher and prefer glass, plastic or stainless metal utensils, which can be sterilized before use.

ATTENTION Specific advice for the cleaning of the demijohn:

- Be careful not put the demijohn directly into boiling water, as this will cause thermal shock and it may break. To avoid this, let it a few minutes under the hot tap water and then dive gently into the boiling water ensuring that all parts of the demijohn are sufficiently submerged. Use a disinfecting detergent.

- Natural home disinfectant (see recipe page 12) or an industrial disinfectant detergent type Chemipro® (available on www.radisetcapucine.com). It is important not to pour boiling water over it, not to soak in a boiling water bath, or put in the dishwasher.

- After fermentation, the inner wall of the demijohn will be covered with many impurities, dried foam, dead yeasts, etc ... Also for some utensils such as bubbler + cap. You will need to thoroughly clean them before any further use. First rinse thoroughly with hot water, then with a detergent - disinfectant, taking care to eliminate all the impurities stuck on the interiors. Use a suitable bottle brush if necessary (available at a hardware store or a specialized drugstore).

RECIPE TO MAKE 1 LITER OF ECOLOGICAL DETERGENT AT HOME:

Mix in 1 liter of hot water, 2 tablespoons of baking soda (descaler, disinfectant, degreaser). Add 2 tablespoons white wine vinegar (descaler, degreaser, stain remover). Shake vigorously and put it in your demi john. Rinse thoroughly with cold water and let it dry.



FAQ

THE BEER IS NOT SPARKLING ENOUGH:

- You may not have add enough sugar before bottling.
- Once filled and closed, the bottles were stored at too low temperature, which prevented the secondary fermentation from taking place, or on the contrary, they were exposed to too high temperature (which killed the yeasts). As stated in the instructions for use of this kit, bottles should be stored for 1 to 2 weeks between 21 ° C and 27 ° C.
- You may have left the beer in the demijohn too long after the end of the fermentation.
- The caps or mechanical rubber seals you used for your bottles were defective.

FERMENTATION DOES NOT START:

- You may have forgotten to put the yeast in your must
- The must was too hot when you poured the yeast, which could destroy it. This can be remedied by re-integrating yeast at an optimal temperature level (ie 21-27 ° C). To buy additional yeast, log on to: www.radisetcapucine.com.
- At the contrary, the temperature of the must was too low when you poured the yeast, which prevented or reduced their activation. The fermentation may have started then stopped, or may not have started at all. You can remedy this by increasing the temperature of your must. For example, you can place the demijohn in a warmer place, in the sun or near a heat source. But be careful not to exceed the temperature of 27 ° C to avoid the risk of killing yeasts.

BEER TOO CARBONATED / BOTTLE EXPLOSION:

- You may have added too much sugar before bottling. In general, the amount should be 8 g / L at a density of 1.010 (4 g / L at a density of 1.012). It is extremely important that the amount of sugar is accurately measured. Use a precise kitchen scale, rather than a measuring cup.
- The beer has not fermented sufficiently before bottling. In this situation, the sugar consumed by the yeasts will be transferred to the bottles. Thus this sugar plus that added before bottling is in excess, which generates an excess of gas. If the gas pressure is high enough, the bottles can explode (this is a very rare but very dangerous situation that can cause injury). Check the temperature of the room and your beer, as well as the activity in the bubbler. Also always check the density of your beer before bottling, it must be 1.010 to 1.012 before the addition of sugar.
- Your beer has been infected with microorganisms.

THE FOAM FALLS TOO QUICKLY IN MY GLASS:

- The bottles used may be «polluted» (by detergents, greasy foods, defects or poorly washed deposits).
- The alcohol content may be too strong: it can happen if the amount of sugar added to the must is too much.
- Presence of excessive yeast in the bottle (first incomplete fermentation).
- The bottles may have been stored at too high a temperature after the end of the fermentation in the bottle (which killed the yeasts).

THE BEER HAS AN ACID OR BITTER TASTE AND / OR AN UNPLEASANT ODOR:

This is a sign that your beer is infected with microorganisms. Do not drink it!

There are a number of factors that can cause this:

- The use of a suitable swab is really effective in removing sediment from the inner surface of the demijohn after fermentation. But it can also leave micro scratches on the glass, sometimes difficult to see and which form ideal niches for bacteria. It is therefore important to properly sterilize your utensils to destroy these microorganisms.
- Once the must has been prepared, it is important to add the yeast quite quickly. It often happens that brewers use water that is too hot and so must wait a long time for the temperature of the must to fall between 21 and 25 ° C to add the yeast. The longer you wait, the higher the risk of infection. If you follow the instructions in the user manual, you should achieve a good result.

THERE IS NO ACTIVITY IN THE BUBBLER:

The cap and / or the bubbler may not be well positioned, and therefore the demijohn is not closed tight enough. It is thus wrongly thought that the fermentation has not started because there is no bubbling activity through the bubbler, when in fact the beer is fermenting but the CO₂ escapes through the cap (not closed enough)

- You may have forgotten to put water in the bubbler. As before, gas exchange occurs well but without visible activity in the bubbler.
- A good way to know if your must is fermenting is to see a foam developing on the surface of the liquid, and the falling, leaving many deposits on the demijohn.
- The temperature of the must is too high (see «Fermentation does not start»).
- The temperature of the must is too low (see «Fermentation does not start»).

A question ?
Our cook is at your disposal
to answer your questions by
e-mail: cuisinier@radisetcapucine.com

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