

Tasty Saline – What?

Starring:

Tasty Saline is basically a type dry powder mix, which can provide a fluid replacement against dehydration after getting water mixed and after drinking. The need and demand of Oral Saline is increasing day by day. The saline in dried condition is convenient to carry everywhere as well as while in travelling. During summer or while exercising body gets dehydrated. In this situation, only dry powdered saline can provide a quicker relief against dehydration as well as thirst. Tasty Saline is instant tasty and healthy solution against dehydration after sweating.

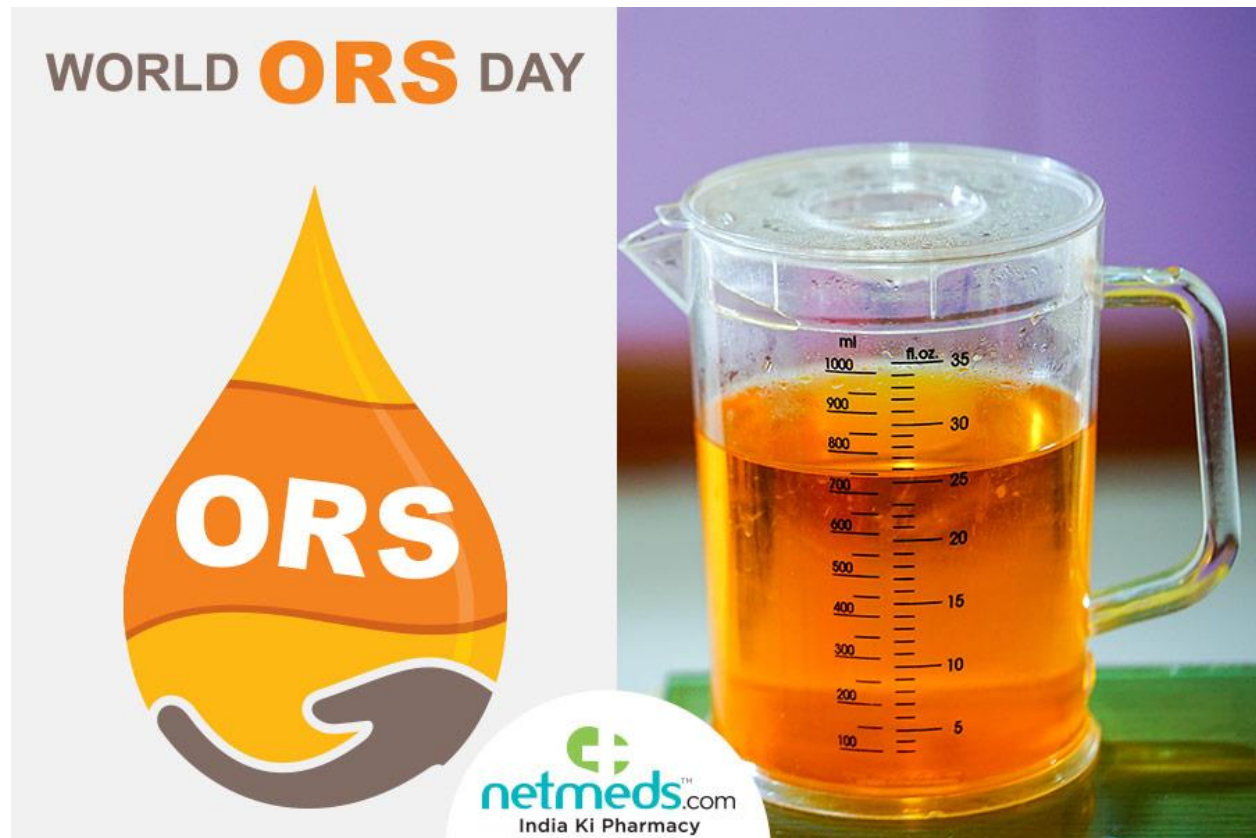


Figure: Saline [ORS]

Some companies are using additional permitted food color and flavor to make a difference among them. The compositions are quite/nearly same, except the additional permitted color and flavor.

Oral Rehydration Therapy generally drinking water with modest amount of salt or electrolytes and sugar specially sodium and potassium. Recommended items are sodium chloride, sodium citrate, potassium chloride, sugar or dextrose or glucose. The molar ratio of sugar and salt will be 1:1.

Orsaline a liquid formulation made by mixing salts [of which the important one is common salt] and sugar which is used to compensate for the loss of excessive fluid [water and salts] from the body that occur during an episode of severe water diarrhea as exemplified by cholera. [Banglapeida]

Formula for WHO Standard and Low-Osmolar ORS

Component	Standard		Low-Osmolar	
	gm/L	oz/L	gm/L	oz/L
NaCl [Salt]	3.5	0.133	2.6	0.092
Tri sodium citrate di-hydrated	2.9	0.100	2.9	0.100
KCl	1.5	0.053	1.5	0.053
Anhydrous Glucose	20	0.705	13.5	0.480
Total	27.9	0.981	20.5	0.725

Figure: Formula for WHO Standard and Low-Osmolar ORS

Molar Composition for WHO Standard and Low-Osmolar ORS

Components	Standard	Low-Osmolar	Acceptable Range
	mmol/L	mmol/L	mmol/L
Glucose	111	75	<111
Sodium	90	75	60-90
Potassium	20	20	15-25
Chloride	80	65	50-80
Citrate	10	10	8-12
	311	245	200-310

Figure: Molar Composition for WHO Standard and Low-Osmolar ORS



ORAL REHYDRATION SALTS SOLUTION
 IF ORS PACKETS ARE NOT AVAILABLE, YOU CAN PREPARE IT AT HOME AS WELL.

- CLEAN WATER - 1 LITRE - 5 CUPFUL**
(EACH CUP ABOUT 200 ML.)
- SUGAR - SIX LEVEL TEASPOONS**
(1 TEASPOON = 5 GRAMS)
- SALT - HALF LEVEL TEASPOON**
- STIR THE MIXTURE TILL THE SUGAR DISSOLVES**

Figure: Homemade formula for ORS

Who invented ORS:

Mr. Rafiqul Islam [1936 to Mar'2018] [Chaouddagram, Comilla] was a Bangladeshi Physician and a medical scientist. He is well known for the discovery of oral rehydrated saline for the treatment of diarrhea.

CAN ORS BE USED BY EVERYONE ?



ORS is safe and can be used to treat anyone suffering from diarrhoea, before a detailed diagnosis is done by the doctor.

One of his most important inventions is the Orsaline. During the time of Liberation War in 1971, cholera used to spread in the refugee camp of West Bengal in India; an intravenous fluid was given as a therapeutic treatment. After the independence of Bangladesh, a drastic publicity campaign was conducted on the use of saline for the treatment of diarrhea. At that time, it was known as “Dhaka Saline”. On 1980, the WHO recognized “Orsaline”. Bangladeshi non-governmental organization BRAC played an important role of spreading “Orsaline” to the remote areas of Bangladesh.

Why Industry performs Saline:

Saline dry powder mix performs a quick, convenient solution while suffering in diarrhea as well as heavy sweating. A conventional method is continuing, that is mixing the sugar and salt in water then drink. But a mini pack containing the necessary element is much more convenient to use. A mini pack is also convenient for carrying and very much easier to find out while necessary.

Based on the objectives, the industries are rendering their service to produce saline in mini pack for consumer conveniency.

Saline Production Process:

Tasty Saline is a dried powder mix, where moisture controlling is a must. Apart of this, the saline production process can be described as follows.

- Initial Mixing for the ingredients
- Drying of the initial mixed items
- Final Mixing for the ingredients
- Packing

A] Initial Mixing for the ingredients

All the ingredients according to the recipe has weighted properly and accurately. Then the ingredients are placed in a cone mixer or in a ribbon mixer. The mixer is ongoing for a certain period of time based on the guideline of quality.

A 01] Cone Mixer

There can be various types of cone mixer. The figure shows a common type of cone mixer. Some company are using “V” type cone mixer also.

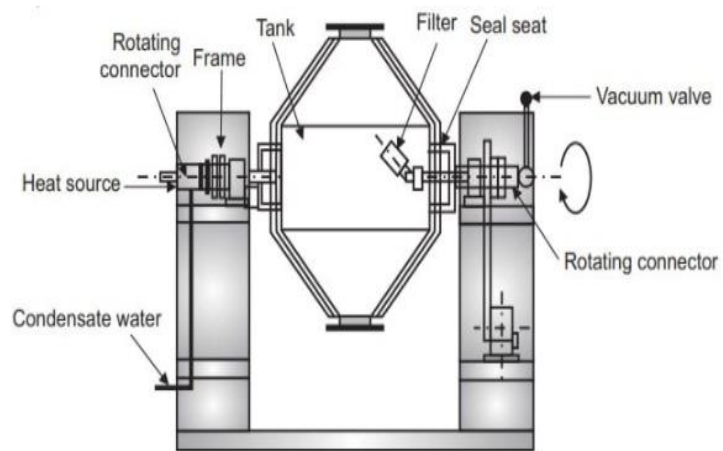


Figure: Cone Mixer Unit

Cone blender is an efficient and versatile machine for mixing of dry powders and granules homogeneously. All the product contact parts are made of stainless steel.

A 02] Ribbon Mixer

There are some processing industries, where ribbon mixer is used instead of cone mixer. The ribbon mixer is horizontal mixing process for the dried ingredients. Ribbon mixer is designed for consistent, homogeneous batch or continuous blending of powders and granules.

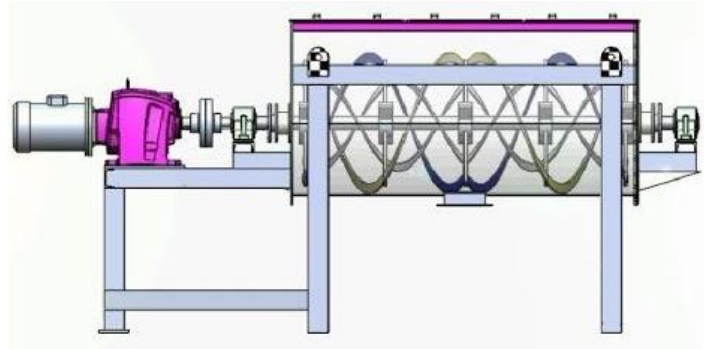


Figure: Ribbon Mixer Unit

The performance of ribbon mixer varies from gentle blending to high intensity mixing. Ribbon Mixing Machine is a very popular choice of mixer as it has wide range capacity of powders and bulk solids mixing. Based on the processing convenience, the producer can choose ribbon mixer also.

B] Drying of the initial mixed items

Drying is the essential part for dry powder production process. Drying is the process by which the optimum level of moisture is controlled for the final products.

B 01] Fluid Bed Dryer:

Fluid Bed Dryer is an equipment which is used extensively in food processing industries and pharmaceutical industries to reduce the moisture content of powder and granules. The equipment works on a principle of fluidization of the feeding materials.



Figure: Fluid Bed Dryer

The principle of fluid bed dryer: If air is allowed to flow through a bed of solid powdered material in upward direction with the velocity greater than the settling rate of particles, then the solid particles will be blown up and become suspended in the air stream. Thus the moisture is reduced to the desired level.

An internal diagrammatic figure is shown here to understand the all unit related to a Fluid Bed Dryer.

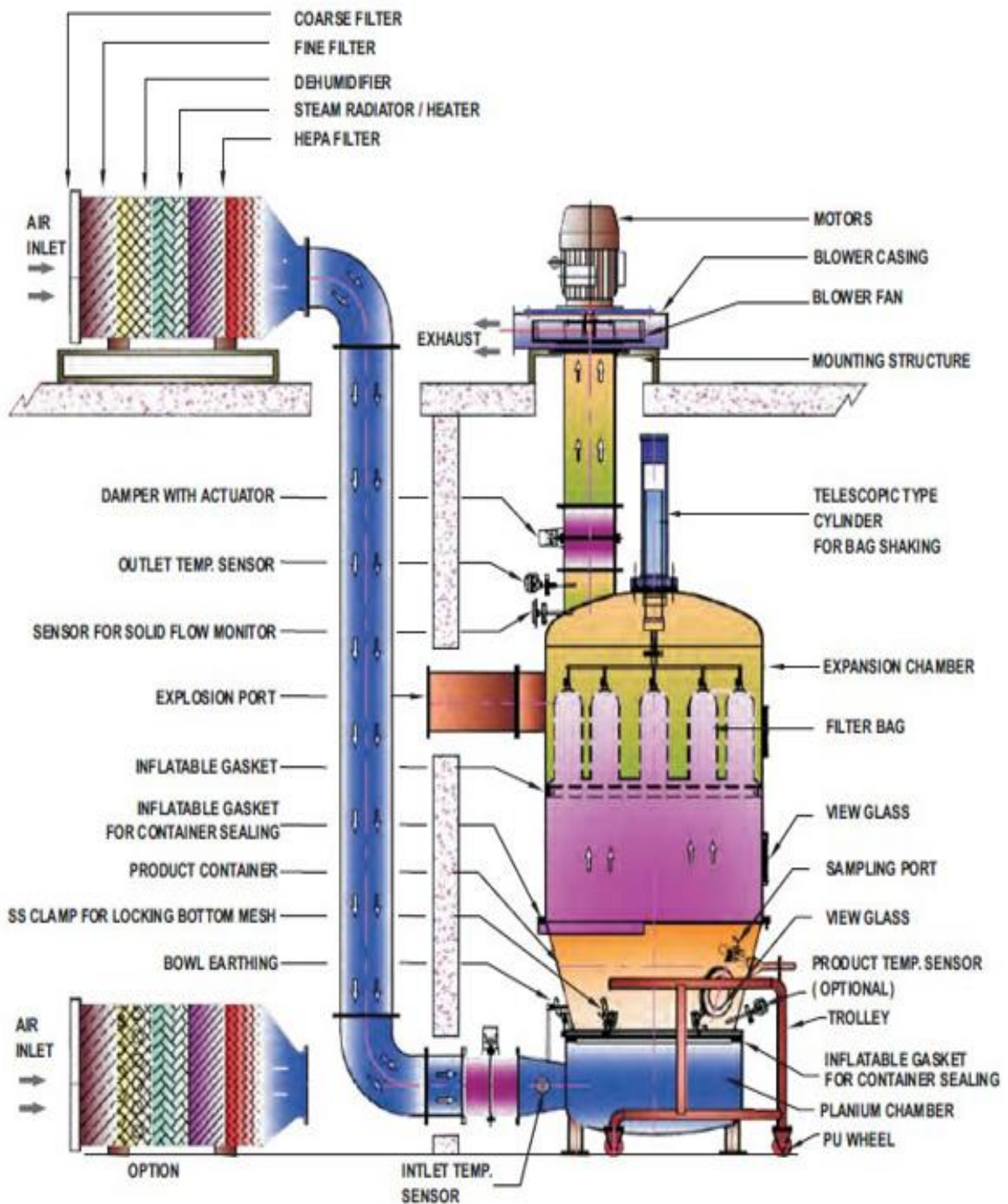


Figure: Fluid Bed Dryer [Inner Diagram]

B 02] Tray Dryer:

A tray dryer is a heated chamber used to remove moisture and other solvents from the powder and granules. The oven dryer typically has a fan or turbine which sparks the convection process that provides heats and thus inside material gets dried.

Tray drying is a batch process used to dry materials at desired level. The loaded materials are batched and placed into trays for drying.

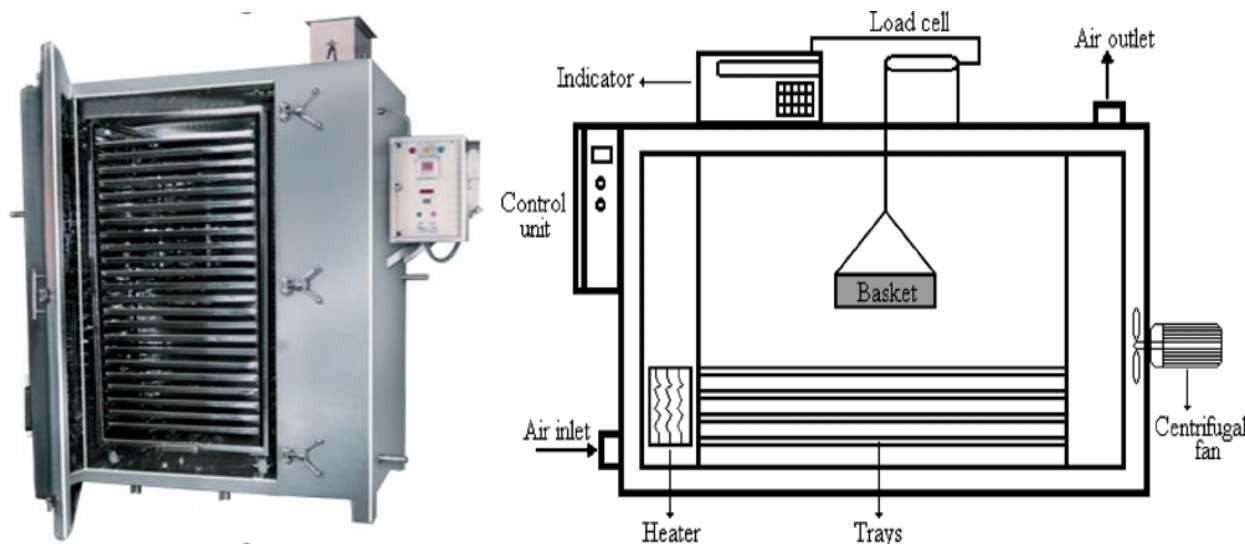


Figure: Tray Oven Dryer [Single Chamber]

The term tray drying is normally referring to small amount of industrial drying. The heating is done in form of air heater and a fan that helps to pass the air over the product

C] Final Mixing for the ingredients

In case of final mixing, the cone mixer can be used.

D] Packing Machine:

The dried product is filled in a VFFS machine. The full meaning of VFFS is **Vertical Form Filling & Sealing**. This is such kind of filling system, where the products are packed vertically.

VFFS is a method of packaging system where the bag is created while the filling process is running. Both vertical seal and horizontal seal can be done in this machine.



Figure: Sachet Filling Machine [Single]



Figure: Sachet Filling Machine [Multi]

The packaging material is inserted through the mechanism so that the machine can form pouch. After that the product is filled and sealed immediately after filling.

Different types of pack can be produced by VFFS machine.