

# INSTANT WET SNOW

**FUN**

## Required:

Snow polymer powder  
Teaspoon  
Bucket  
Water  
Stirrer

**SAFE**



Prepare instant, wet snow from a dry polymer and water. Three teaspoons make one liter snow!

## PROCEDURE

1. Cover the floor with a tarp for easy clean-up.
2. The ideal snow mix formula is:

15 ml (3 teaspoons) polymer powder to 1 liter water

3. Always add the powder to the water.
4. Stir the mixture rapidly for 2 minutes. It will first form a clear gel and then fluff up into snow.

## NOTES:

- The water absorption process is an osmotic process, the best absorption will be with water at 20°C and as clean as possible from dissolved salts. First try the reaction with tap water - it should work OK. If not, get distilled water.
- Use less water for drier and fluffier snow.
- "Recycle" the snow: If the snow dries out, add water and it will regain its volume and fluffiness.
- The polymer will decompose under UV light so keep out of the Sun.
- The added water can be "recovered" by sprinkling table salt (NaCl) onto the gelled polymer.

**WARNING:** Snow is very slippery and should be kept off walkways and floors.

## CLASSROOM IDEAS:

◊ Dissolve a fizzy tint tablet in water and use the water to prepare the snow. Mix coloured snow. ◊ Grow snow with cold and hot water. ◊ How much water can the snow hold. Use a balance. ◊ Check the Law of Conservation of Mass: Does the weight of the water & powder equal the snow mass? ◊ Freeze the snow and try to sculpt an object from the snow. ◊ Compare snow made and left open, under a light and sealed. ◊ Compare the properties of real snow and wet polymer snow.

## WHAT IS HAPPENING?

Wet snow is a **superabsorbent polyacrylamide polymer**. It is used in agriculture as water retainer in soils and absorbs large quantities of water and nutrients. Advantages for agriculture are numerous: it increases water holding capacity of soils for several years, doubles the water holding period for sandy soils, reduces the leaching of fertilizers, reduces evaporation and aerates the soil. It can soak up water to more than 300 times its own mass.

The crosslinked molecules have a high potassium content and absorb water through a process known as **osmosis**. The water rapidly migrates into the interior of the polymer network where it is stored as the network expands. In this process water passes through a membrane to an area with higher salt and lower water concentration.

## DISPOSAL

The snow will last for years if not exposed to UV. Can be used over and over - just add water. If disposal is required: mix with garden soil.

## SAFETY

Sodium polyacrylate is classified non-hazardous. As with all dry powders, the dry polymer may cause eye irritation. If necessary rinse eyes with plenty of water. Obtain medical attention if the irritation persists. The snow polymer is slippery when wet. Keep off walking surfaces and clean all spills immediately.

