**Activity 3 – Hydrogels in action – disposable nappies**

**Materials for session (per pair):**

|  |  |
| --- | --- |
| A disposable nappy | Scissors |
| A large ice cream tub or similar | Distilled water |
| salt | Dessert spoon or similar |
| Stirring rod | 1000 cm3 beaker |
| 100 cm3 measuring cylinder | Gloves if you have sensitive skin |
| Large sieve | Basins |
| 10 cm3 measuring cylinder |  |

**Method**

1. Cut the middle section out of a nappy.

1. Transfer the small white grains from the nappy into a dry container. Dispose of fluff.

1. Transfer 5 cm3 grains to the 10 cm3 measuring cylinder. This is your starting volume.

1. Transfer the grains to the beaker with 100 cm3 water. Stir to combine. Continue adding water in 100 cm3 increments, mixing each time, until no more can be absorbed (i.e. the stirring rod no longer stands up unsupported). Record the volume of water added.

1. Pour the hydrogel suspension through a sieve, positioned over a basin. Drain excess water. Measure the volume of the drained water and subtract this from the value in Step 4. This is your final volume of hydrogel.

1. Dispose of hydrogel in the bin bag – *do not pour down the sink.*

**Results**

Starting with a volume of 5 cm3, the final volume of the hydrogel after it reached its maximum absorbency is shown in the table and bar chart below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Brand of nappy** | **Final volume of hydrogel (cm3)** | | | |
| **1** | **2** | **3** | **Average** |
| Amazon | 670 | 650 | 700 | 673 |
| Aldi | 540 | 500 | 530 | 523 |
| Lidl | 650 | 650 | 630 | 643 |
| Rascal and friends dry all night | 650 | 670 | 640 | 653 |

