

## *Storage conditions for vaccines and diluents*

- The WHO no longer recommends that freeze-dried vaccines such as BCG, measles and Yellow fever be kept frozen at  $-20^{\circ}\text{C}$ .*
- Storing them at this temperature is not harmful to the vaccines but takes up unnecessary deep-freeze storage space.*
- Instead, they should be stored between  $+2^{\circ}\text{C}$  to  $+8^{\circ}\text{C}$ .*
- All freeze-dried vaccines become more heat-sensitive after they have been reconstituted.*



## Storage conditions for vaccines and diluents

- ❑ BCG, measles, MR, MMR and rubella vaccines are not only sensitive to *heat* but also to *light*.
- ❑ Normally, these vaccines are supplied in dark brown glass vials to protect them against light damage.
- ❑ Nevertheless, they should always be covered and protected from strong light.
- ❑ Hepatitis B, Hib (liquid), DTP, DT, Td and TT vaccines are sensitive to *both heat and freezing* (i.e., below  $0^{\circ}\text{C}$ ), and should be protected accordingly



# Shake test

DPT, DT, dT, TT  
These vaccines are damaged by freezing

- *Shake test should be performed on a sample of vaccine vial in question and on the sample of the same batch/manufacture which is known to have been frozen.*

- *The two vials should be shaken vigorously for few minutes, and observed for the rate of sedimentation*

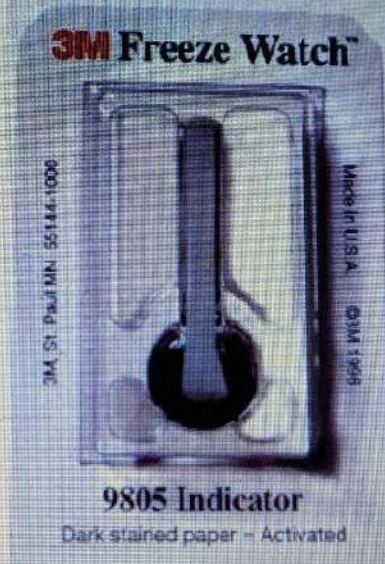




# Controlling and monitoring temperatures

- *FreezeWatch indicators are CCMs used to monitor storage conditions of cold-sensitive vaccines.*
- *Stop! Watches comprise of CCM and FreezeWatch devices to monitor high and low storage temperatures in a refrigerator.*

## 3M™ Freeze Watch™ Indicators



Non-Activated



Activated

When exposed to sub-freezing temperatures, the liquid in the ampoule freezes, causing the ampoule to fracture and stain the indicator paper.



# Controlling and monitoring temperatures

- A Cold Chain Monitor card (CCM) approved by the WHO is always packaged with each consignment of vaccine supplied by UNICEF.
- All CCMs have temperature-sensitive indicators that monitor heat exposure throughout the entire journey of vaccine, from manufacturer to health facility.
- This indicator changes irreversibly from white to blue if exposed to temperatures higher than +10 and +34 °C to monitor conditions in transit and in storage.

## COLD CHAIN MONITOR CARD

The image shows a 'Vaccine Cold Chain Monitor' card. At the top, it has a title and a small icon of a person. Below the title is a table with columns for 'Date in', 'Index', 'Location', 'Date out', and 'Index'. The first row contains handwritten entries: '3-19' under 'Date in', 'Rom, Italy' under 'Location', and blank spaces for 'Index' and 'Date out'. Below the table is a 'MonitorMark' strip with four color-coded zones labeled A, B, C, and D. A red arrow points to the 'D' zone, which is currently white. Below the strip is a section with a black background and white text that says 'TEST VACCINE BEFORE USE'. At the bottom of the card, there are fields for 'SUPPLIER' and 'FOURTHSQUART'.

Every carton of perishable vaccines is packed with a temperature-sensitive card that is checked and marked at different points during shipment.

Areas on label turn blue to indicate spoilage.