How to perform the "Shake Test"

The "shake test" was designed to detect freeze damage in aluminum-based, adsorbed, freeze sensitive vaccines such as DTP, DT, Td, TT, typhoid, and hepatitis B. These vaccines must never be frozen as this reduces their immunogenicity. When these vaccines freeze, the alum content gets loose, tends to agglomerate, and sediments faster than vaccines that have not suffered freeze damage.

If you suspect that a vaccine has been frozen (e.g., thermometer marks temperature <0ºC), conduct a "Shake test":

Step 1.
Freeze a vial until it is solid; this will be your control vial – call it "FROZEN".

Step 2.
Allow FROZEN vial to thaw completely.

Step 3.
  Select one sample of each vaccine you suspect has been frozen – call it "SUSPECT".

Step 4.
  Shake FROZEN and SUSPECT vials.

Step 5.
  Observe FROZEN and SUSPECT vials side-by-side to compare how they sediment (5-15 minutes).

IF SUSPECT vial sediments <u>slower</u> than FROZEN vial ⟶ USE (see Figures at left).

IF SUSPECT vial sediments <u>at the same rate as or faster</u> than FROZEN vial ⟶ DO NOT USE.

> **A Shake Test must be performed for each separate batch of vaccine.**

Further information:
- To see a step-by-step video on the Shake Test, go to http://vimeo.com/8389435.
- To download a WHO learning guide on how to use the shake test, go to https://apps.who.int/vaccines-access/vacman/temperature/shake_test_learning_guide.htm.
- PATH Poster: *Has your vaccine been damaged by freezing?* Available at: http://www.path.org/files/TS_cc_shake_test.pdf.

10:25 a.m.

SUSPECT (Test Vial)

FROZEN (Control Vial)

Minutes after placing the vials on the table.

10:28 a.m.

10:31 a.m.

10:33 a.m.

Sedimentation in test vial is slower than the frozen control vial. Test vial has not been damaged and can be used.