timestrip®

the smart way to measure time & temperature

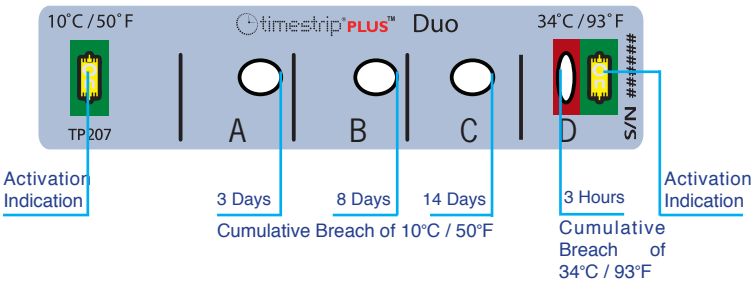
Timestrip® PLUS Duo

A temperature abuse indicator for Vaccines

How long has this vaccine been kept above its maximum recommended storage temperature? Has it also been exposed to excessively high temperatures?

Timestrip® PLUS Duo provides a low cost and accurate answer to both questions. Duo is a small and self-adhesive double temperature indicator. It monitors two ascending temperature thresholds in one label and indicates:

- If cold chain conditions have been compromised (breached 10°C/50°F) and if this abuse has lasted for 3 days (A), 8 days (B) or 14 days (C).
- the vaccine has been exposed to very high temperatures (34°C/93°F) and irreversibly records when this abuse has lasted for 3 hours.



actual size 80mm x 19mm

Duo's technical specifications follow World Health Organization (WHO) recommendations for monitoring vaccine temperature and reflect the tolerances allowed for different vaccines. Duo can also be used to monitor supply chains for medicines or other products for which the specified time and temperature thresholds are relevant.

Duo is inert until activated so it can be stored safely at room temperature and can be activated in the field.

Duo can be ordered from stock via our distributors, including small order sizes for samples/trials. Duo can be customised to combine different temperature thresholds or different time markers. Custom projects are subject to minimum order size, minimum technical specifications and additional cost.

Please contact us for more information.

Benefits & Features

Flexible Use and Storage	Duo is inert until activated so it can be stored at ambient temperatures and activated when required in the field.
Reliable Evidence	Duo is single use, irreversible and accurate to within +/-1°C/2°F.
Targeted Decision Making	Duo is small, light and cost effective enough to support the monitoring of many packs within a consignment; pockets of temperature abuse can be identified.
Easy to Read	Duo is visually clear and easy to interpret so handlers can quickly and confidently recognise temperature abuse. Clear and visible monitoring may also encourage a greater duty of care.
Quality Assured	Duo is manufactured to ISO9001:2008 is process and batch validated and each indicator has a unique serial number. It is patented, safe and disposable.
Cost	Duo is a low cost solution that requires no power. It is a cost effective and practical replacement for data loggers.

Timestrip®

the smart way to measure time & temperature

How Duo Works

All Timestrip® PLUS indicators work as follows. A mixture will melt from solid to liquid form when an ascending temperature threshold is breached and return to solid form if the temperature falls again to its freeze point (STOP temperature). When in liquid form, the mixture will move laterally through a porous membrane at a known rate. The progress of the liquid will be visible through a viewing window.

Once Timestrip® PLUS is activated, if the temperature being monitored remains below the STOP temperature, the blue colour will not move. If the threshold is breached, the blue colour will progress to a viewing window with time markers. Each movement is irreversible so the cumulative time of any temperature breaches is shown by how far the blue colour has moved along the time markers.

With Duo, the blue colour will completely fill window A after 3 days of a breach of 10°C, window B after 8 days and window C after 14 days. A different blue formulation is contained in the 34°C indicator. It will melt and completely fill window D three hours following a breach of 34°C.

Specifications

Type	Irreversible, single use
Activation Feature	2 manual activation buttons on the back – 1 for each temperature threshold. Both 'On' windows turn green.
Indication	Windows A, B, C or D turn blue if thresholds are breached for the time thresholds indicated.
Temperature & Time Thresholds (A-C)	Threshold of 10°C/50°F and STOP of 8°C/46°F. Time markers; 3 days (A), 8 days (B) and 14 days (C).
Temperature & Time Thresholds (D)	Threshold of 34°C/93°F and STOP of 30°C/86°F. Time marker; 3 hours.
Accuracy of Temperature	+/-1°C/2°F
Accuracy of Time	+/- 15% in isothermal conditions
Size	80mm x 19mm
Quality Assurance	Produced under ISO9001:2008

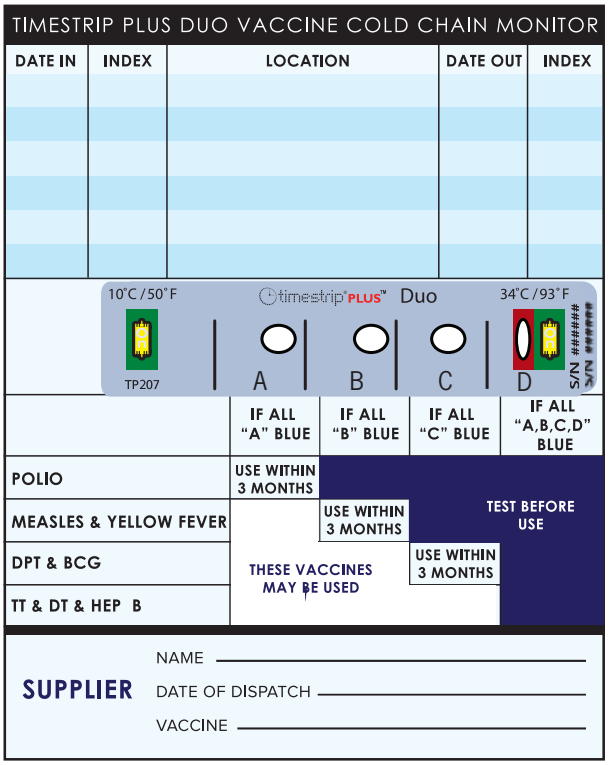
Shipping & Handling

Recommended Storage	Room temperature: 22°C/72°F at 20-80% humidity. Cool, dark environment.
Packaging	100 indicators per box Labelled with expiry and batch number
Shipping Package Requirements	No special requirements as inert until activated.
Protection	Splashproof
Traceability	Unique serial number on each indicator.
Shelf Life	Inert: 2 years from manufacturing date. Post activation: Until shows breach/ 1 year.

Application - Duo

Duo can be stuck directly onto product packaging or a vaccine monitoring card which clearly explains to the end user how to interpret the display windows.

The example provided shows how the usage requirements of different vaccines can be accommodated by a single Duo label.



Duo on a vaccine monitoring card

Our Full Range

Timestrip® also make time indicators that act as reminders for time dependent actions. The range extends from minutes to years.

The Timestrip® PLUS range of indicators monitors elapsed time at a specified temperature. The full range spans -20°C to +38°C (-4°F to 100°F).

Other specialist temperature indicators are available: Seafood, Food and Blood Temp 10 (for blood bags).

Detailed information for all our products is available on our website www.timestrip.com

Please contact us for distributor details.

timestrip®

the smart way to measure time & temperature

How to Use Timestrip® PLUS Duo

1. Storage- Inactive

Ideally store at room temperature, 20-80% humidity & in a cool, dark environment. Duo is inert prior to activation. All the windows are white. Discard before use any indicator that does not have all its windows white.

2. How To Activate

Activate the 34°C indicator first. Raise the temperature above 35°C (and not greater than 60°C) and fully press the button under D. The activation window on the right should turn green and reveal 'ON'. In the event that it doesn't, re-heat and press the button fully.

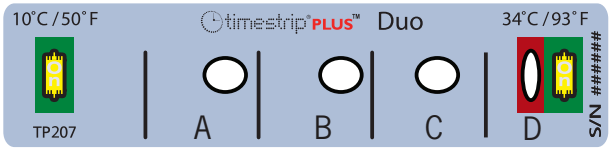
Then press the 10°C indicator button fully until the left side activation window turns green and 'On' is revealed.

Within 5 minutes of activation, place Duo below 8°C for a minimum of 1 hour to ensure the liquid freezes again. Duo is then armed and ready to use. You can adhere the indicator immediately to a package or carrying card which is already below the STOP temperature of 8°C. Alternatively place the activated indicator in an environment much colder than the STOP temperature for a short period of time and then attach it to the carrying card or package.

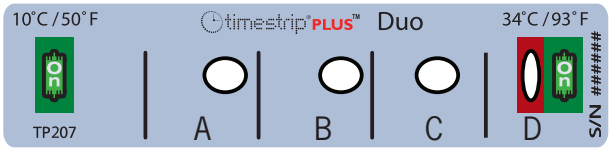
3. Review

Once correctly activated, window A will completely fill with blue if the threshold temperature of 10°C has been breached for 3 days, window B for 8 days and window C for 14 days. D will completely fill with blue if 34°C has been breached for 3 hours.

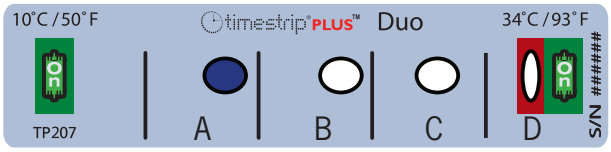
Duo shows clearly if vaccines or medicines have been exposed to temperature abuse and for how long.



Inactive

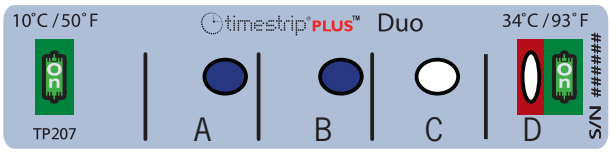


Activated and NOT breached



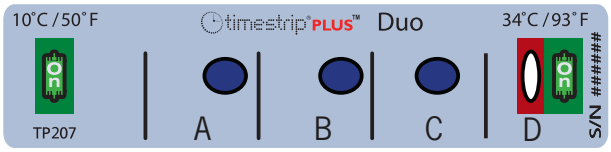
Breached 10°C

Breaches of 10°C occurred for 3 days, but less than 8 days



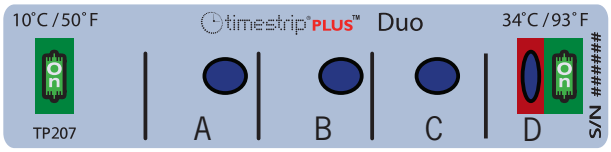
Breached 10°C

Breaches of 10°C occurred for 8 days, but less than 14 days



Breached 10°C

Breaches of 10°C occurred for at least 14 days.



Breached 34°C

Breaches of 34°C occurred for at least 3 hours.