

Application of Irreversible Temperature Indicator Strips in blood transportation

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Using Irreversible Temperature Indicator Strips to monitor the temperature of blood cold chain transportation can intuitively monitor the blood cold chain transportation process through a more economical and convenient method to ensure the safety of blood cold chain transportation, and ensure the quality of blood and the safety and effectiveness of blood transfusion.

Keywords: cold blood chain; blood transport; Irreversible Temperature Indicator Strips

Irreversible Temperature Indicator Strips for cold chain monitoring

At present, there are two blood transport modes adopted by blood collection and blood supply institutions, namely, refrigerated transport truck mode and blood transport box mode. Due to the high cost of procurement and maintenance of refrigerated transport vehicles, it is more common to choose certified blood transport boxes to ensure the cold chain transport of blood. Use Irreversible Temperature Indicator Strips to monitor the cold chain transportation process to ensure that the blood transportation temperature is within the specified range.



Irreversible Temperature Indicator Strips play a very intuitive role in blood cold chain temperature monitoring. They can meet the temperature monitoring of the whole blood and component blood cold chain transportation. At the same time, irreversible colour changes can be used as the basis of the original through the image recording of the end of the cold blood chain to prevent artificial changes. Irreversible Temperature Indicator Strips do not require electricity and will not cause the monitoring interruption due to power outages or dead batteries to cause a cold chain out of control. It can achieve effective monitoring of blood cold chain transportation, ensure the integrity of blood cold chain transportation, and ensure the quality and The safety and effectiveness of blood transfusion.

Irreversible Temperature Indicator Strips requirements for processing and transportation

Most vaccines must be stored and shipped frozen in a low-temperature environment. To better ensure the vaccine is maintained in a low-temperature setting throughout the storage and transportation process, Irreversible Temperature Indicator Strips must be provided for service guarantee. Because one of the functions of the cold chain label is that the ink will fade at room temperature, and this type of fade is irreversible. Once the vaccine is stored at room temperature for a certain period, the label's colour will change, thus prompting medical care. The personnel's storage environment for the vaccine has changed, this kind of effect is generally done by using special inks.

Irreversible Temperature Indicator Strips ink regulations

At this stage, the production and processing of label packaging printing may be dominated by screen and flexographic packaging printing. These two popular packaging and printing methods are all colour inks with supporting facilities. The cost of ink is relatively high, and it is not suitable for large-scale on-line packaging and printing. Most of them are used for packaging and printing some simpler patterns. Detecting changes in ambient temperature.

Production processing and transportation requirements

There are two types of Irreversible Temperature Indicator Strips at this stage: one is a complete cold chain label, and the other is a semi-cold chain label.

What is a semi-cold chain label?

Semi-cold-chain labels refer to labels that can be produced at room temperature. Post-labeling can also be carried out at room temperature. However, the products must be stored in a low-temperature environment after labelling. The regulations for semi-cold chain labels are relatively low and are mainly used in food logistics and other fields. Generally, semi-cold chain labels do not have the function of detecting environmental temperature changes.

What is a complete cold chain label?

A complete cold chain label means that the label must be manufactured in a low-temperature environment. Subsequent application and transportation must also be carried out in a low-temperature setting. The top layer of this type of label is printed with a temperature sensor ink. After the ambient temperature changes (generally, the temperature rises), the ink's colour tone will cause an irreversible change. This type of label can detect changes in ambient temperature. Therefore, the entire process of manufacturing and post-application must be carried out in a low-temperature environment.

The problem that must be solved is that the temperature of the general colour printing factory's production workshop is set at 20-25°C because the printing equipment can normally work at this temperature, but it is impossible to produce full cold chain labels under this temperature standard. It can be processed by two-layer production and processing:

Perform other labelling processes at room temperature, and finally perform the final process flow in a low-temperature environment. After the production and processing are carried out, at the same time, the labelling product quality inspection work is carried out in a low-temperature environment and finally stored in a low-temperature freezer. Because the Irreversible Temperature Indicator Strips production process is more complicated, the environmental regulations are higher, and the cost is higher. At this stage, this type of label may be mainly used in high-end industries such as pharmaceutical vaccines.