

Datasheet

Choosing the Right Ion Selective Electrode for an Application.

There are three types of Jenway ISEs - all of which have advantages in certain applications. It is important to select the correct ISE for your application. The ISEs are listed below with the advantages and disadvantages of each one. If it is still unclear which ISE a situation requires, please contact your local Jenway distributor or e mail sales@jenway.com for further advice or support.

1. Half Cell ISE with separate reference electrode either single or double junction:

Traditionally the most common set up is with a double junction reference electrode filled with the appropriate filling solution, which is usually the ISAB or a dilution of the ISAB.

This set up is ideal for low concentration work as the outer filling solution of the reference can be diluted to minimise interference or ionic strength problems. Half Cell ISEs are also advisable when several different ions are being measured simultaneously as this will be both economical and practical. Also if the reference electrode fails it is fairly low cost to replace. The electrodes are supplied leadless with two leads available to suit common connections.

Half cell ISEs are also easier to maintain and can have a longer lifetime, if carefully handled.

Double junction reference electrodes have a slightly faster response due to the liquid electrolyte, but do have the disadvantage that they need to be refilled and to be stored wet.

2. Combination ISEs with built in driTEK reference:

This is the most practical way to perform ion analysis in the field and is perfect for non skilled operators. The ISE and reference electrode are combined in one body, which is stored dry and requires no or little maintenance.

The electrodes are supplied leadless with two leads available to suit common connections.

Because the reference electrode has a gel electrolyte, it is both fairly concentrated and cannot be replenished. This means that more care (particularly conditioning) is required for low concentration work and in these cases the Flow Plus or Half Cell options are better options.

This Method is meant for your guidance. Jenway are not responsible for the recommendations in detail.

As the reference electrolyte cannot be replenished, the electrode lifetime is less than that of a Half Cell and a reference electrode set-up. However the practicality of this set-up outweighs any lifetime issues if you need to work in the field or require rapid analysis with unskilled operators. Also if the reference part of the electrode does fail, it can still be used as a half-cell with an appropriate reference electrode.

3. Flow Plus Combination ISE:

The Jenflow Plus ion selective electrode incorporates two solid state electrodes in one 12mm epoxy body. Jenflow Plus combination ion selective electrodes have a solid state crystalline membrane or a solid state PVC polymer membrane with an integral reference electrode and a liquid junction. The reference electrode has an adjustable free-flowing liquid junction, which will reduce drift and provide more stable readings. Jenflow Plus electrodes are ideal for measuring solutions with suspended material or high viscosity, which could clog conventional reference electrodes.

This type of ISE combines the benefits of both of the other types of ISE. There is no need for a separate reference as it is a combined unit. It also has a liquid refillable reference, which enables low concentration work to be performed but with the added advantage of being stored dry due to the ability to flush clean the electrode after use.

The sensor is also easy to maintain as the electrode can be taken apart, cleaned and re assembled.

Summary:

Application	Half-cell ISE	Combination ISE	Flow Plus ISE
Aqueous Solutions, Laboratory Based	v		
Aqueous Solutions, Field Based		v	
Low Concentration Work	v		v
Solutions with Suspended Materials			v
High Viscosity Solutions			v

If the application is complex or you want to be sure which ISE is right for your application, contact your local Jenway distributor or sales@jenway.com.

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