

## Reading pH levels of pH 12 or higher in the presence of Sodium

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When reading pH concentrations above pH 12, the limitations on the pHTestrs (and many pH electrodes) in the presence of sodium are a result of the general-purpose pH electrode used. The pH electrode is essentially an ion-specific electrode that is specific for the hydrogen ion. At pH values above 12 the concentration of hydrogen is very small (remember pH is the negative log of concentration, so pH 12 means 0.000000000001 hydrogen ion concentration). When there are so few hydrogen ions present, the electrode will "mistake" any sodium ions present in the solution for hydrogen ions.

**NOTE:** Sodium ions do not cause any difficulty when the pH is below 12.

### Solutions

Several electrodes are available with specially formulated glass that will minimize the sodium error. If you need to take accurate pH measurements at high pH levels where there will be sodium present, select one of our hand-held meters and use one of the following electrodes designed for high sodium applications.

### *OAKTON electrodes for high pH/high sodium applications*

Model number	Built-in Temp. Element (ATC)	Maximum Temperature	Diameter	Cable length
<b>Epoxy body, single junction, gel filled pH electrodes</b>				
WD-35805-05	no	80°C	12 mm	3 ft
WD-35801-76	yes	80°C	12 mm	2.5 ft
<b>Epoxy body, double junction, gel filled pH electrodes</b>				
WD-35805-06	no	80°C	12 mm	3 ft
WD-35801-77	yes	80°C	12 mm	2.5 ft