1.3 Determination of anions in polyethylene glycol (PEG6000)

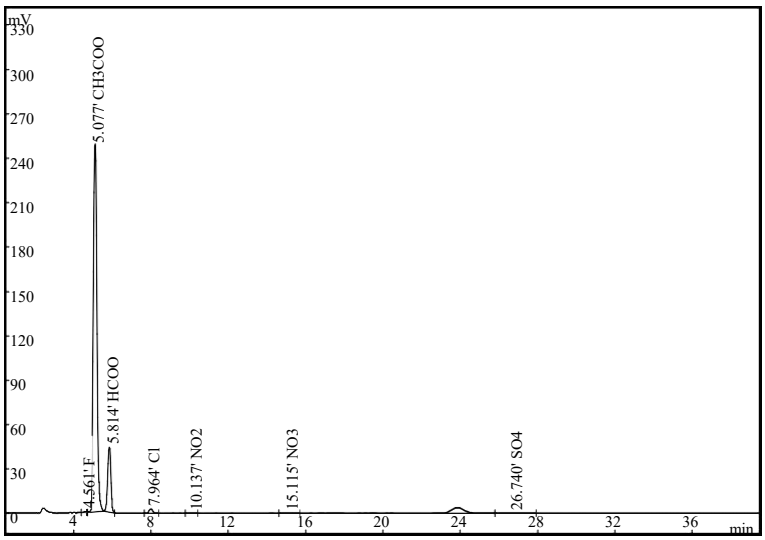
Polyethylene glycol (PEG) is the general term of glycol polymers, including PEG300, PEG400, PEG600,PEG1000, PEG4000, PEG6000, PEG10000, PEG20000 (PEG20M), etc. With the increase of average molecular weight, the physical state of PEG changes from liquid to paste or wax solid at room temperature. All kinds of PEG have good water solubility, organic solvent solubility and thermal stability, and are non-toxic without stimulation, which can be used in medicine, cosmetics, food, chemical industry, electroplating, rubber and other industries. Peg is widely used in this kind of products. The impurity anions are F^-, $CH3COO^-$, $HCOO^-$, Cl^-, NO_2^-, NO_3^-, SO_4^{2-}, which will directly affect the quality of downstream products, especially in medicine, food, electroplating and other fields. For example, the content of signal impurities Cl^-, SO_4^{2-} in the drug can reflect the purity level of the drug; excessive NO_2^- in the food can cause cancer; the content of Cl^- and SO_4^{2-} in the plating solution can directly affect the current efficiency and the covering ability of the plating solution. The method for the determination of impurity anions in PEG6000 by ion chromatography with suppressed conductivity detection is simple, convenient and environmental friendly. It can be applied to the detection of impurity anions in all kinds of PEG products. It can provide a reference for improving the quality of PEG

products and optimizing the production process, and then provide a basis for formulating the downstream product accusation limit and risk assessment of drug impurities.

Analysis Conditions:

- Analytical Column：SH-G-1+SH-AC-11
- Mobile Phase：10 mM KOH
- Flow Rate：1.0 mL/min
- Suppressor：SHY-A-6
- Injection Volume：25 μL

Pretreatment: Weigh about 1g of sample (accurately record the mass, accurate to 0.001g), dissolve it with ultra pure water to a constant volume of 100mL (ultrasonic accelerated dissolution), and filter it through C18 column and 0.22 μm membrane.



Chromatogram of anions in polyethylene glycol (PEG6000)