

# Glycol Ethers Definition

As of August 2, 2000, EPA has redefined the Glycol Ethers category of the Clean Air Act. As described in the Federal Register ([FRL-6843-3](#)), "this action deletes each individual compound in a group called the surfactant alcohol ethoxylates and their derivatives (SAED) from the glycol ethers category in the list of hazardous air pollutants (HAP) established..."

This new definition is as follows:

Glycol ethers are defined in the modification to the Clean Air Act (CAA) as organic compounds with the following structure:



Where:

n = 1, 2, or 3

R = alkyl C7 or less; **or**

R = phenyl or alkyl substituted phenyl;

R' = H or alkyl C7 or less; **or**

OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

NOTE: The above definition of glycol ethers meets US-EPA's definition as outlined in the modifications to the "[Clean air Act \(CAA\)](#)", Section 112 (b) (3).

This definition includes mono-and di-ethers of ethylene glycol, but does not include ethylene glycol (CAS No. 107-21-1), diethylene glycol (CAS No. 111-46-6), nor triethylene glycol (CAS No. 112-27-6) because the part of these molecules, defined as R above, are not alkyl or aryl groups. However, **ethylene glycol** (CAS No. 107-21-1) is specifically listed in the "[Clean Air Act \(CAA\)](#)" 1990 list of pollutants. Additionally, **ethylene glycol monoethyl ether** (CAS No. 110-80-5) is regulated as a NC toxic air pollutant (as listed in the NC Air Quality Rule [15A NCAC 2D.1100 & 2Q.700](#)). Polymers are excluded from the glycol category.

**NOTE:** Currently, the compilation of glycol ethers based on the **OLD** definition (given below) is available at the DAQ web site (<https://deq.nc.gov/about/divisions/air-quality/air-quality-data/glycol-ethers>). However, this list should be used with care; as this list have not as yet been modified to reflect the NEW definition. If there is a question of whether a particular compound conforms to the NEW definition, please contact Jim Bowyer, (919) 715-7484.

As new compounds are identified that meet the glycol ether definition, they will be added to the compilation.

The **OLD** definition of glycol ethers was defined in the Clean Air Act (CAA) as organic compounds with the following structure:



Where:

n = 1, 2, or 3

R = alkyl or aryl groups

R' = alkyl or aryl groups, H, or groups, when removed, yield glycol ethers with structure:  $R(OCH_2CH_2)_n-OH$ . This also means that OR' may be carboxylic acid ester, sulfate, phosphate, nitrate or sulfonate.