The equilibrium surface tension was determined experimentally for the surfactants 2,4,7,9-tetramethyl-5-decine-4,7-diol (surlynol 485) with 30 moles of ethylene oxide, 2,5,8,11-tetrametyldodeca-6,9-yne-5,8-diol (surlynol DF110-D), and cis-9-octadecen-1-ol (ocenol) in the aqueous amine mixture formed by n-metyldiethanolamina (MDEA) and diethanolamine (DEA) (32.5 mass % of MDEA, 12.5 mass % of DEA, and 55 mass % of water). Seven different concentrations for each surfactant and two temperatures (313.15 and 323.15) K were studied. In order to determine the values of the equilibrium surface tension the pendant drop method was used. The determined uncertainty for the surface tension results is 0.21 mN·m⁻¹.

The experimental values of equilibrium surface tension as a function of surfactant concentration and temperature were used to calculate surface excess, using the Gibbs relation, the surface area occupied by a surfactant molecule at the air-liquid interface, and the modulus of elasticity of Gibbs, to explain the kinetics of surface aging.