CLEAR MICROEMULSION ROLL-ON ANTIPERSPIRANT LOTION - A

RAW MATERIALS	Parts by Weight
WITCONOL APEB (PPG-26-Buteth-26)	3.0
Ceteareth 20	10.0
Oleth-5	4.0
WITCONOL APS (PPG-11 Stearyl Ether)	10.0
Rehydrol, 50% aqueous solution	40.0
Water	33.0

CLEAR MICROEMULSION ROLL-ON ANTIPERSPIRANT LOTION - B

RAW MATERIALS	Parts by Weight
WITCONOL APEB (PPG-26-Buteth-26)	3.0
Ceteareth 20	10.0
Oleth-5	4.0
WITCONOL APM (PPG-3 Myristyl Ether)	10.0
Rehydrol, 50% aqueous solution	40.0
Water	33.0

CLEAR MICROEMULSION ROLL-ON ANTIPERSPIRANT LOTION - C

RAW MATERIALS	Parts by Weight
WITCONOL APEB (PPG-26-Buteth-26)	3.0
Ceteareth 20	10.0
Oleth-5	4.0
WITCONOL PPG-400 (PPG-9)	10.0
WITCONOL APS (PPG-11 Stearyl Ether)	10.0
Rehydrol, 50% aqueous solution	40.0
Water	23.0

CLEAR MICROEMULSION ROLL-ON ANTIPERSPIRANT LOTION - D

RAW MATERIALS	Parts by Weight
WITCONOL APEB (PPG-26-Buteth-26)	5.0
Ceteareth 20	8.0
WITCONOL PPG-400 (PPG-9)	10.0
WITCONOL APM (PPG-3 Myristyl Ether)	5.0
Rehydrol, 50% aqueous solution	40.0
Water	32.0

Heat all ingredients with agitation to 75 to 80C until uniform; cool with agitation (In some cases phase inversion temperature (PIT) is exceeded. When this occurs, a milky emulsion occurs which clears as the formulation cools below it's PIT.)

Viscosities from 500 cps to 5000 cps can be obtained easily by slight formula variations. Viscosity stability and clarity are excellent at elevated temperatures, room temperature and at refrigerated temperatures (4C). Any hazing or clouding effect that occurs at lower temperatures disappears as the formulation returns to room temperature.

Since "Shake before using" need not appear on the label, Witco believes that this factor, coupled with the more aesthetic appearance, offers a more commercially attractive approach to roll-on formulating.

SOURCE: Witco: Surfactants for Cosmetics and Toiletries: Formula 101A: A-D