

Simulation Report

DWSIM v.8.0

Details

Title:	00 Mixer Sim
Comments:	<ul style="list-style-type: none">• Develop a simple process sheet to mix two liquid streams and estimate the flow rate and composition of outlet stream.• Inlet stream 1: 10 mol % Methanol solution flowing at 20 kmol/h• Inlet stream 2: 80 mol % Methanol solution flowing at 10 kmol/h

Object: Outlet stream

Type: Material Stream

Property	Value	
Temperature	298.15	K
Pressure	101325	Pa
Mass Flow	0.228053	kg/s
Molar Flow	8.33334	mol/s
Volumetric Flow	0.000269039	m3/s
Density (Mixture)	847.656	kg/m3
Molecular Weight (Mixture)	27.3663	kg/kmol
Specific Enthalpy (Mixture)	-1458.29	kJ/kg
Specific Entropy (Mixture)	-4.652	kJ/[kg.K]
Molar Enthalpy (Mixture)	-39908.2	kJ/kmol
Molar Entropy (Mixture)	-127.308	kJ/[kmol.K]
Thermal Conductivity (Mixture)	0.248449	W/[m.K]

Object: Inlet stream 2

Type: Material Stream

Property	Value	
Temperature	298.15	K
Pressure	101325	Pa
Mass Flow	0.057835	kg/s
Molar Flow	2.77778	mol/s
Volumetric Flow	6.11026E-05	m3/s
Density (Mixture)	946.524	kg/m3
Molecular Weight (Mixture)	20.8206	kg/kmol
Specific Enthalpy (Mixture)	-2053.47	kJ/kg
Specific Entropy (Mixture)	-6.72148	kJ/[kg.K]
Molar Enthalpy (Mixture)	-42754.6	kJ/kmol
Molar Entropy (Mixture)	-139.945	kJ/[kmol.K]
Thermal Conductivity (Mixture)	0.422925	W/[m.K]

Object: Inlet stream 1

Type: Material Stream

Property	Value	

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Temperature	298.15	K
Pressure	101325	Pa
Mass Flow	0.170218	kg/s
Molar Flow	5.55556	mol/s
Volumetric Flow	0.000211298	m3/s
Density (Mixture)	805.584	kg/m3
Molecular Weight (Mixture)	30.6392	kg/kmol
Specific Enthalpy (Mixture)	-1256.07	kJ/kg
Specific Entropy (Mixture)	-4.08201	kJ/[kg.K]
Molar Enthalpy (Mixture)	-38485	kJ/kmol
Molar Entropy (Mixture)	-125.07	kJ/[kmol.K]
Thermal Conductivity (Mixture)	0.212675	W/[m.K]