

References	ρ	D_{Ch+}	D_{Urea}	D_{Cl-}	η	γ	α_p	β_T	κ
[1]	1.199				1750	64.14			0.249
[2]					1286				
[3]	1.196				1398				0.400
[4]									
[5]	1.1980					53.1			
[6]					1012.3				
[7]									
[8]									
[9]									
[10]									
[11]	1.1979				748.09		4.37		
[12]	1.212				750				
[13]									
[14]	1.1979				1571				
[15]									
[16]	1.1979								
[17]									
[18]	1.25	0.35	0.66		750				
[19]									
[20]						52.02			

Table 1: Experimental data of physiochemical properties of reline, in reverse chronological order of reporting. Temperature = **298.15K**, P = 1 atm

Units: η = cP or mPa.s, γ = mN.m⁻¹ , α_p = 10⁻⁴ K⁻¹, D = 10⁻¹¹ m² /s

ρ = gm/cm³, κ = mS/cm or 10 S/m , β_T =

References	ρ	D_{Ch+}	D_{Urea}	D_{Cl-}	η	γ	α_p	β_T	κ
[1]	1.196				1028.3	62.16			0.421
[2]	1.197								
[3]	1.193				855.5				0.640
[4]	1.195				536.93				
[5]									
[6]					658.5				
[7]	1.216								
[8]					893				
[9]									
[10]									
[11]	1.1952				511.61		4.38		
[12]									
[13]	1.1945				527.3				
[14]	1.1952				953.7				
[15]	1.216	0.1412	0.04881	0.03479	552				2.31
[16]	1.1951								
[17]									
[18]									
[19]	1.1953*								
[20]					400*				0.9

Table 2: Experimental data of physiochemical properties of relene, in reverse chronological order of reporting. Temperature = **303.15K**, P = 1 atm

Units: η = cP or mPa.s, γ = mN.m⁻¹, α_p = 10⁻⁴ K⁻¹, D = 10⁻¹¹ m² /s

ρ = gm/cm³, κ = mS/cm or 10 S/m, β_T =

References	ρ	D_{Ch+}	D_{Urea}	D_{Cl-}	η	γ	α_p	β_T	κ
[1]	1.191				414.5	58.29			1.06
[2]	1.192								
[3]	1.188				357.1				1.440
[4]	1.189				242.52				
[5]									
[6]					333.6				
[7]	1.209								
[8]									
[9]									
[10]									
[11]	1.1900				243.04		4.40		
[12]									
[13]	1.1887				238.1				
[14]	1.1901				403.2				
[15]									
[16]	1.1893								
[17]									
[18]									
[19]	1.1899*								
[20]					200*				1.2

Table 3: Experimental data of physiochemical properties of reline, in reverse chronological order of reporting. Temperature = **313.15K**, P = 1 atm

Units: η = cP or mPa.s, γ = mN.m⁻¹ , α_p = 10⁻⁴ K⁻¹, D = 10⁻¹¹ m² /s

ρ = gm/cm³, κ = mS/cm or 10 S/m , β_T =

1 Points of interest in each report

1.1 Report - Lapena 2020 [1]

1. Comprehensive review, cites 18 previously reported papers on thermophysical properties.
2. Range of Temperatures $T = 288.15\text{K}$ (claimed to be freezing temperature) - 338.15K when anhydrous, 278.15K - 338.15K with 10 percent water , Water content = 0 and 10 percent only (X_{reline}) = 0.645
3. Density (ρ), Speed of Sound (u) , Refractive Index (n), Isobaric molar heat capacity ($C_{p,m}$), surface tension(γ) , kinematic (ν) and dynamic (η) viscosity, electrical conductivity (κ)
4. dynamic viscoity (η) = density (ρ) x kinematic viscosity (ν)
5. Anhydrous densities (ρ) = 1.205 (288.15K), 1.196 (303.15K), 1.182 (330.65K), 1.178 (338.15K)
6. Densities at 10 percent water = 1.185 (278.15K), 1.180 (288.15K), 1.172 (303.15), 1.157 (330.65K), 1.154 (338.15K)
7. **Observations** No explanation given for the discrepancies except for water content

1.2 Report - Gilmore 2019 [2]

1. Thorough reporting on trace water (in ppm) in anhydrous reline, and controlled water content. Densities and Viscosities measure at temperatures $T = 293.15\text{K}$ - 368.25K .
2. **Reports melting point of reline eutectic mixture at 304.95K** . If this report is accurate, the simulations performed at $T = 293.15\text{K}$ are not supposed to be in liquid state.
3. Densities and Viscosities are given at different temperatures each. There is **no temperature** where they measure **both density and viscosity**.

1.3 Report - Agieienko 2019 [3]

- 1.

1.4 Report - Dhingra 2019 [4]

1. Densities and Dynamic Viscosities at temperatures $T = 303.15\text{K}$ - 358.15K
- 2.

1.5 Report - Komal 2018 [5]

- 1.

1.6 Report - Mirza 2017 [6]

1. Viscosity measurements at temperatures $T = 293.2\text{K}$ - 353.2K at water content of 0.1, 2.5, 8.7 percent (in Supplementary info)

1.7 Report - Jabbar 2017 [7]

1. Reports density, isentropic compressibility and speed of sound of Reline:water, ethaline:water, glycine:water mixtures at Temperatures $T = 303.15\text{K}$ - 353.15K

1.8 Report - Dietz 2017 [8]

1. Viscosity reported at temperatures $T = 303.15\text{K}, 323.15\text{K}, 353.15\text{K}$

1.9 Report - Mjalli 2016-1 [9]

1. Density, viscosity, refractive index, pH and Conductivity at temperatures $T = 293.15\text{K} - 353.15\text{K}$
2. No information provided in a tabular form. All plotted in graph with fitting parameters.
3. Most untrustworthy paper in this list

1.10 Report - Mjalli 2016-2 [10]

1. Molar volume instead of density, was measured. The correlation is not 1-1.
2. Again values given in a plot

1.11 Report - Chemat 2016 [11]

1. Thermal properties of melting point, glass transition temperature, thermal decomposition temperature, and molar heat capacity
2. Physical properties like density, viscosity and refractive index
3. Gives a comparison to other private reported data, but no explanation for the discrepancy.

1.12 Report - Mjalli 2014 [12]

- 1.

1.13 Report - Yadav 2014 [13]

- 1.

1.14 Report - Xie 2014 [14]

- 1.

1.15 Report - Leron 2012-1 [16]

1. Density measurements at temperatures $T = 298.15\text{K} - 323.15\text{K}$, and pressures from 0.1MPa to 50MPa; for different reline-water mixtures
2. Isothermal compressibilities and Isobaric expansivity are reported, but start at 5MPa, for different reline-water mixture at temperatures $T = 303.15\text{K} - 318.15\text{K}$.

1.16 Report - Leron 2012-2 [17]

1. Molar heat capacities (C_p) reported at temperatures $T = 303.15\text{K} - 353.15\text{K}$

1.17 Report - D'Agostino 2011 [18]

- 1.

1.18 Report - Su 2009 [19]

1. Densities at temperatures $T = 293.15\text{K} - 353.15\text{K}$ at different water compositions. **The number reported in the tables were 99.44 percent pure Reline.**

1.19 Report - Abbott 2003 [20]

1. Viscosities and conductivities are reported at different temperatures, but in a plot.
2. Density = 1.24 g/cc at 318.5K , Surface tension = 52.02 at 298.15K

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