

DAFTAR PUSTAKA

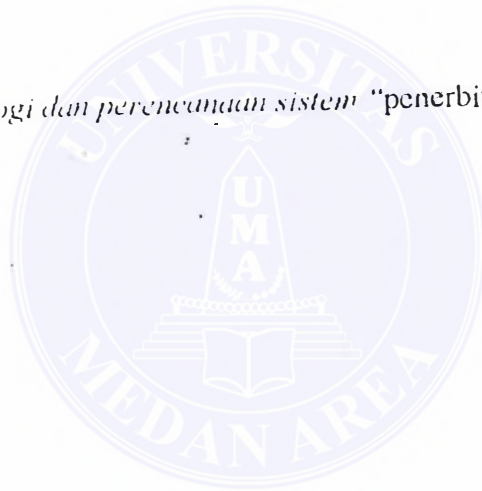
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J.P.Holman "*Perpindahan Kalor* " Edisi 6,Erlangga, Jakarta 1986

Ir.Tunggul Sitompul SE,Msc "*Alat pemukar Kalor* "Erlangga , Jakarta.

DIKTAT PERTAMINA "*Pengenalan dan toeri dasar Heat Exchanger*"Modul I dan
Modul III

Ir.Raswari "*Teknologi dan perencanaan sistem* "penerbit Universitas Indonesia





LAMPIRAN 2

SATUAN VOLUME:		SATUAN TEKANAN:	
1 US Barrel	= 42 US . gallon = 35 Imp . gallons	1 lb/ft . 2	= 47,88 pascal = 4,83 kg/m ²
1 m ³	= 1000 liter = 1,308 cu . yards = 25,31 cu . feet	1 p.s.i	= 6894 pascal = 2,036 inch . Hg = 0,0703 kg/cm ² = 0,690 bar
1 liter	= 1.000.000 cc = 0,22 Imp. gallon = 0,2642 US gallon = 61,0 cu. Inches	1 m kolom air	= 9806 pascal = 0,1 kg/cm ²
1 cu . ft/min	= 1,699 m ³ /jam	1 m . Hg	= 133,3 kilopascal = 1,360 kg/cm ² = 1,333 milibar
1 m ³ /jam	= 0,589 cu. ft/min	1 kg/cm ²	= 98,066 kilopascal = 735,5 mm . Hg = 0,981 bar = 14,22 p.s.i
KERAPATAN:		SATUAN PANAS DAN ENERGI:	
1 cu. ft/lb	= 0,0624 m ³ /kg	1 B.T.U	= 778 ft.lbs = 107,6 kg.m = 0,252 Kkal
1 lb/cu . ft	= 16,02 kg/m ³	1 BTU/lb	= 0,556 Kkal/kg
1 m ³ /kg	= 16,02 cu.ft/lb	1 BTU/cu.ft	= 8,9 Kkal/m ³
1 kg/m ³	= 0,0624 lb/cu . ft	1 BTU/hr.sq.ft.F/ft	= 1,488 Kkal/j m ² °C/m
1 g/m ³	= 0,437 grain/cu.ft	1 kilokalori	= 3083 ft.lbs = 427 kg.m = 3,968 BTU = 4,187 K.J
1 g/liter	= 0,0584 grain per 1 US gallon	1 kilojoule	= 0,2388 Kkal = 0,948 BTU
1 g/liter	= 58,4 grain per 1 US gallon	1 KW	= 738 ft.lbs/sec = 102 kg.m/detik = 1,341 HP = 1,36 DK (metrik)
SATUAN TEKANAN:			
1 atm standar	= 101,325 pascal = 760 mm. Hg = 14,696 p.s.i = 1.033 kg/cm ² = 1031 milibar		
1 atm metrik	= 98.066,5 pascal = 1 kg/cm ² = 10 m.kolom air = 14,22 p.s.i		
1 bar	= 100.000 pascal = 1000 milibar = 750,1 mm . Hg		

Lanjutan Gambar 9.5

Liquid	X	Y	Liquid	X	Y
Acetaldehyde.....	15.2	4.8	Freon-21.....	16.7	7.5
Acetic acid, 100%.....	12.1	14.2	Freon-22.....	17.2	4.7
Acetic acid, 70%.....	9.1	17.0	Freon-113.....	12.5	11.4
Acetic anhydride.....	12.7	12.8	Freon-114.....	14.0	8.8
Acetone, 100%.....	14.6	7.2	Glycerol, 100%.....	2.0	30.0
Acetone, 35%.....	7.9	15.0	Glycerol, 60%.....	0.9	19.0
Allyl alcohol.....	10.2	14.3	Heptane.....	14.1	8.4
Ammonia, 100%.....	12.6	2.0	Hexane.....	14.7	7.0
Ammonia, 26%.....	10.1	13.0	Hydrochloric acid, 31.5%.....	13.0	10.0
Amyl acetate.....	11.8	12.5	Isobutyl alcohol.....	7.1	18.0
Amyl alcohol.....	7.5	18.4	Isobutyric acid.....	12.2	14.4
Aniline.....	8.2	18.7	Isopropyl alcohol.....	8.2	10.0
Anisole.....	12.3	13.0	Mercury.....	18.4	10.4
Arsenic trichloride.....	13.0	14.6	Methanol, 100%.....	12.4	10.5
Benzene.....	12.5	10.9	Methanol, 60%.....	12.3	11.3
Brine, CaCl ₂ , 25%.....	8.0	15.9	Methanol, 40%.....	7.8	15.5
Brine, NaCl, 25%.....	10.2	10.0	Methyl acetate.....	14.2	8.3
Bromine.....	14.2	13.2	Methyl chloride.....	16.0	8.3
Bromotoluene.....	20.0	15.0	Methyl ethyl ketone.....	18.9	8.0
n-Butane.....	15.3	3.3	Naphthalene.....	7.0	18.1
Isobutane.....	14.5	3.7	Nitric acid, 95%.....	12.8	13.3
Butyl acetate.....	12.3	11.0	Nitric acid, 60%.....	10.8	17.0
Butyl alcohol.....	5.5	17.2	Nitrobenzene.....	10.6	10.3
Butyric acid.....	12.1	15.3	Nitrotoluene.....	11.0	17.0
Carbon dioxide.....	11.6	0.3	Octane.....	13.7	10.0
Carbon disulfide.....	10.1	7.5	Octyl alcohol.....	0.6	21.1
Carbon tetrachloride.....	12.7	13.1	Pentachloroethane.....	10.9	17.3
Chlorobenzene, <i>ortho</i>	12.3	12.4	Pentane.....	14.0	5.2
Chlorobenzene, <i>para</i>	14.4	10.2	Phenol.....	6.9	20.8
Chloroform.....	11.2	18.1	Phosphorus tribromide.....	13.8	10.7
Chlorosulfonic acid.....	13.6	13.3	Phosphorus trichloride.....	10.2	10.0
Chlorotoluene, <i>ortho</i>	13.3	12.6	Propane.....	15.3	1.0
Chlorotoluene, <i>meta</i>	13.3	12.6	Propionic acid.....	12.8	13.8
Chlorotoluene, <i>para</i>	13.3	12.6	Propyl alcohol.....	9.1	10.5
Cresol, <i>meta</i>	2.6	20.8	Propyl bromide.....	14.5	9.6
Cyclohexanol.....	2.0	24.3	Propyl chloride.....	14.4	7.5
Dibromoethane.....	12.7	5.5	Propyl iodide.....	14.1	11.6
Dichloroethane.....	13.5	12.2	Sodium.....	16.4	13.9
Dichloromethane.....	14.1	8.0	Sodium hydroxide, 50%.....	3.2	25.8
Diethyl oxalate.....	11.0	16.4	Stannic chloride.....	13.5	12.8
Dimethyl oxalate.....	12.8	15.8	Sulfur dioxide.....	15.2	7.1
Diphenyl.....	12.0	18.3	Sulfuric acid, 110%.....	7.2	27.4
Dipropyl oxalate.....	10.3	17.7	Sulfuric acid, 98%.....	7.0	24.8
Ethyl acetate.....	13.7	9.1	Sulfuric acid, 60%.....	10.2	21.3
Ethyl alcohol, 100%.....	10.7	13.8	Sulfuryl chloride.....	15.2	12.4
Ethyl alcohol, 95%.....	9.8	14.2	Tetrachloroethane.....	11.9	16.7
Ethyl alcohol, 40%.....	0.7	0.0	Tetrachloroethylene.....	14.2	12.7
Ethyl benzene.....	13.2	11.6	Titanium tetrachloride.....	14.4	12.3
Ethyl bromide.....	14.5	8.1	Toluene.....	13.7	10.4
Ethyl chloride.....	14.8	0.0	Trichloroethylene.....	14.8	10.5
Ethyl ether.....	14.5	5.3	Turpentine.....	11.6	14.0
Ethyl formate.....	14.2	8.4	Vinyl acetate.....	14.0	8.8
Ethyl iodide.....	14.7	10.5	Water.....	10.2	18.0
Ethylene glycol.....	6.0	23.1	Xylene, <i>ortho</i>	13.8	12.1
Formic acid.....	10.7	15.8	Xylene, <i>meta</i>	13.0	10.0
Freon-11.....	14.4	0.0	Xylene, <i>para</i>	13.0	10.0
Freon-12.....	10.8	5.6			

* From Perry, J. E., "Chemical Engineers' Handbook," 3d ed., McGraw-Hill Book Company, Inc., New York, 1950.