Příloha A.2 - Aspen report - model s dvěma reaktory

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PLATFORM: WINDOWS
VERSION: 36.0 Build 249
INSTALLATION:

JUNE 21, 2020
SUNDAY
4:39:01 P.M.

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RUN CONTROL SECTION

RUN CONTROL INFORMATION

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TYPE OF RUN: EDIT

INPUT FILE NAME: _4125eaz.inm

INPUT PROBLEM DATA FILE NAME : _4125eaz
OUTPUT PROBLEM DATA FILE NAME: _3810jif
LOCATED IN:

PDF SIZE USED FOR INPUT TRANSLATION:
  NUMBER OF FILE RECORDS (PSIZE) =   0
  NUMBER OF IN-CORE RECORDS   =   256
PSIZE NEEDED FOR SIMULATION   =   1

CALLING PROGRAM NAME: apmain
LOCATED IN: C:\Program Files (x86)\AspenTech\Aspen Plus V10.0\Engine\\xeq

SIMULATION REQUESTED FOR ENTIRE FLOWSHEET

FLOWSHEET SECTION

FLOWSHEET CONNECTIVITY BY STREAMS

STREAM	SOURCE	DEST	STREAM	SOURCE	DEST
WIN	----	COOLER	CO2	----	MIXER
H2	----	MIXER	MIX	MIXER	COMPR
MIXHP	COMPR	PREHEAT	R1IN	PREHEAT	R1
R1OUT	R1	R2	CH4	SEPAR	----
H2O	SEPAR	----	PRODHP	COOLER	EV
R2OUT	R2	COOLER	PRODLP	EV	SEPAR
WOUT	COOLER	----			

FLOWSHEET CONNECTIVITY BY BLOCKS

BLOCK	INLETS	OUTLETS
MIXER	H2 CO2	MIX
COMPR	MIX	MIXHP
PREHEAT	MIXHP	R1IN
R1	R1IN	R1OUT
SEPAR	PRODLP	CH4 H2O
R2	R1OUT	R2OUT
EV	PRODHP	PRODLP
COOLER	R2OUT WIN	PRODHP WOUT

COMPUTATIONAL SEQUENCE

SEQUENCE USED WAS:
MIXER COMPR PREHEAT R1 R2 COOLER EV SEPAR

OVERALL FLOWSHEET BALANCE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	GENERATION	RELATIVE DIFF.
CONVENTIONAL COMPONENTS (KMOL/HR)				
METHA-01	0.00000	0.194668	0.194668	0.455397E-12
CARBO-01	0.199955	0.528206E-02	-0.194673	0.120590E-13
WATER	4.44067	4.83002	0.389342	-0.202276E-13
HYDRO-01	0.793698	0.150197E-01	-0.778678	0.868566E-14
CARBO-02	0.00000	0.508782E-05	0.508782E-05	0.446506E-12
TOTAL BALANCE				
MOLE(KMOL/HR)	5.43433	5.04499	-0.389337	0.00000
MASS(KG/HR)	90.4000	90.4000		-0.440159E-14
ENTHALPY(CAL/SEC)	-90646.5	-92358.7		0.185386E-01

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.80000	KG/HR
PRODUCT STREAMS CO2E	78.3079	KG/HR
NET STREAMS CO2E PRODUCTION	69.5079	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	69.5079	KG/HR

PHYSICAL PROPERTIES SECTION

COMPONENTS

ID	TYPE	ALIAS	NAME
METHA-01	C	CH4	METHANE
CARBO-01	C	CO2	CARBON-DIOXIDE
WATER	C	H2O	WATER
HYDRO-01	C	H2	HYDROGEN
CARBO-02	C	CO	CARBON-MONOXIDE

U-O-S BLOCK SECTION

BLOCK: COMPR MODEL: COMPR

INLET STREAM: MIX
OUTLET STREAM: MIXHP
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	RELATIVE DIFF.
TOTAL BALANCE			
MOLE(KMOL/HR)	0.993654	0.993654	0.00000
MASS(KG/HR)	10.4000	10.4000	0.00000
ENTHALPY(CAL/SEC)	-5230.93	-4720.00	-0.976746E-01

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.80000	KG/HR
PRODUCT STREAMS CO2E	8.80000	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

*** INPUT DATA ***

ISENTROPIC CENTRIFUGAL COMPRESSOR

OUTLET PRESSURE BAR	10.0000
ISENTROPIC EFFICIENCY	1.00000
MECHANICAL EFFICIENCY	1.00000

U-O-S BLOCK SECTION

BLOCK: COMPR MODEL: COMPR (CONTINUED)

*** RESULTS ***

INDICATED HORSEPOWER REQUIREMENT	KW	2.13916
BRAKE HORSEPOWER REQUIREMENT	KW	2.13916
NET WORK REQUIRED	KW	2.13916
POWER LOSSES	KW	0.0
ISENTROPIC HORSEPOWER REQUIREMENT	KW	2.13916
CALCULATED OUTLET TEMP	C	263.694
ISENTROPIC TEMPERATURE	C	263.694
EFFICIENCY (POLYTR/ISENTR) USED		1.00000
OUTLET VAPOR FRACTION		1.00000
HEAD DEVELOPED,	M-KGF/KG	75,507.7
MECHANICAL EFFICIENCY USED		1.00000
INLET HEAT CAPACITY RATIO		1.37781
INLET VOLUMETRIC FLOW RATE , L/MIN		403.540
OUTLET VOLUMETRIC FLOW RATE, L/MIN		74.2146
INLET COMPRESSIBILITY FACTOR		1.00030
OUTLET COMPRESSIBILITY FACTOR		1.00399
AV. ISENT. VOL. EXPONENT		1.35981
AV. ISENT. TEMP EXPONENT		1.35686
AV. ACTUAL VOL. EXPONENT		1.35981
AV. ACTUAL TEMP EXPONENT		1.35686

BLOCK: COOLER MODEL: HEATX

HOT SIDE:

INLET STREAM: R2OUT
OUTLET STREAM: PRODHP
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

COLD SIDE:

INLET STREAM: WIN
OUTLET STREAM: WOUT
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	RELATIVE DIFF.
TOTAL BALANCE			
MOLE(KMOL/HR)	5.04499	5.04499	0.00000
MASS(KG/HR)	90.4000	90.4000	0.00000
ENTHALPY(CAL/SEC)	-92360.4	-92360.4	0.157556E-15

U-O-S BLOCK SECTION

BLOCK: COOLER MODEL: HEATX (CONTINUED)

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	78.3079	KG/HR
PRODUCT STREAMS CO2E	78.3079	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

*** INPUT DATA ***

FLASH SPECS FOR HOT SIDE:

TWO PHASE FLASH	
MAXIMUM NO. ITERATIONS	30
CONVERGENCE TOLERANCE	0.000100000

FLASH SPECS FOR COLD SIDE:

TWO PHASE FLASH	
MAXIMUM NO. ITERATIONS	30
CONVERGENCE TOLERANCE	0.000100000

FLOW DIRECTION AND SPECIFICATION:

COUNTERCURRENT HEAT EXCHANGER		
SPECIFIED HOT OUTLET TEMP		
SPECIFIED VALUE	C	30.0000
LMTD CORRECTION FACTOR		1.00000

PRESSURE SPECIFICATION:

HOT SIDE OUTLET PRESSURE	BAR	9.0000
COLD SIDE PRESSURE DROP	BAR	0.0000

HEAT TRANSFER COEFFICIENT SPECIFICATION:

HOT LIQUID	COLD LIQUID	CAL/SEC-SQCM-K	0.0203
HOT 2-PHASE	COLD LIQUID	CAL/SEC-SQCM-K	0.0203
HOT VAPOR	COLD LIQUID	CAL/SEC-SQCM-K	0.0203
HOT LIQUID	COLD 2-PHASE	CAL/SEC-SQCM-K	0.0203
HOT 2-PHASE	COLD 2-PHASE	CAL/SEC-SQCM-K	0.0203
HOT VAPOR	COLD 2-PHASE	CAL/SEC-SQCM-K	0.0203
HOT LIQUID	COLD VAPOR	CAL/SEC-SQCM-K	0.0203
HOT 2-PHASE	COLD VAPOR	CAL/SEC-SQCM-K	0.0203
HOT VAPOR	COLD VAPOR	CAL/SEC-SQCM-K	0.0203

U-O-S BLOCK SECTION

BLOCK: COOLER MODEL: HEATX (CONTINUED)

*** OVERALL RESULTS ***

STREAMS:

```
                 ---------------------------------------
                 |                                     |
R2OUT     ----->|               HOT                   |-----> PRODHP
T=  3.0000D+02  |                                     |       T=  3.0000D+01
P=  1.0000D+01  |                                     |       P=  9.0000D+00
V=  1.0000D+00  |                                     |       V=  3.5708D-01
                 |                                     |
WOUT      <-----|               COLD                  |<----- WIN
T=  7.7651D+01  |                                     |       T=  1.5000D+01
P=  2.0000D+00  |                                     |       P=  2.0000D+00
V=  0.0000D+00  |                                     |       V=  0.0000D+00
                 ---------------------------------------
```

DUTY AND AREA:

CALCULATED HEAT DUTY	CAL/SEC	1607.1599
CALCULATED (REQUIRED) AREA	SQM	0.1678
ACTUAL EXCHANGER AREA	SQM	0.1678
PER CENT OVER-DESIGN		0.0000

HEAT TRANSFER COEFFICIENT:

AVERAGE COEFFICIENT (DIRTY)	CAL/SEC-SQCM-K	0.0203
UA (DIRTY)	CAL/SEC-K	34.0697

LOG-MEAN TEMPERATURE DIFFERENCE:

LMTD CORRECTION FACTOR		1.0000
LMTD (CORRECTED)	C	47.1727
NUMBER OF SHELLS IN SERIES		1

PRESSURE DROP:

HOTSIDE, TOTAL	BAR	1.0000
COLDSIDE, TOTAL	BAR	0.0000

*** ZONE RESULTS ***

TEMPERATURE LEAVING EACH ZONE:

```
                                HOT
       ------------------------------------------------------------
       |                            |                             |
HOT IN |            VAP             |             COND            | HOT OUT
------>|                            |                             |------>
 300.0 |                        161.3|                             |   30.0
       |                            |                             |
COLDOUT|            LIQ             |             LIQ             | COLDIN
<------|                            |                             |<------
  77.7 |                         69.0|                             |   15.0
       |                            |                             |
       ------------------------------------------------------------
                                COLD
```

U-O-S BLOCK SECTION

BLOCK: COOLER MODEL: HEATX (CONTINUED)

ZONE HEAT TRANSFER AND AREA:

ZONE	HEAT DUTY CAL/SEC	AREA SQM	LMTD C	AVERAGE U CAL/SEC-SQCM-K	UA CAL/SEC-K
1	221.681	0.0074	147.9042	0.0203	1.4988
2	1385.479	0.1604	42.5373	0.0203	32.5709

U-O-S BLOCK SECTION

HEATX COLD-TQCU COOLER TQCURV INLET

PRESSURE PROFILE: CONSTANT2
PRESSURE DROP: 0.0 BAR
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

DUTY	PRES	TEMP	VFRAC
CAL/SEC	BAR	C	
0.0	2.0000	77.6506	0.0
76.5314	2.0000	74.6740	0.0
153.0628	2.0000	71.6955	0.0
221.0725	2.0000	69.0471	0.0
229.5943	2.0000	68.7151	0.0
306.1257	2.0000	65.7333	0.0
382.6571	2.0000	62.7500	0.0
459.1885	2.0000	59.7656	0.0
535.7200	2.0000	56.7803	0.0
612.2514	2.0000	53.7942	0.0
688.7828	2.0000	50.8076	0.0
765.3142	2.0000	47.8207	0.0
841.8457	2.0000	44.8336	0.0
918.3771	2.0000	41.8466	0.0
994.9085	2.0000	38.8599	0.0
1071.4399	2.0000	35.8737	0.0
1147.9714	2.0000	32.8881	0.0
1224.5028	2.0000	29.9034	0.0
1301.0342	2.0000	26.9198	0.0
1377.5656	2.0000	23.9374	0.0
1454.0970	2.0000	20.9565	0.0
1530.6285	2.0000	17.9773	0.0
1607.1599	2.0000	15.0000	0.0

U-O-S BLOCK SECTION

HEATX HOT-TQCUR COOLER TQCURV INLET

PRESSURE PROFILE: CONSTANT2
PRESSURE DROP: 0.0 BAR
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

DUTY	PRES	TEMP	VFRAC
CAL/SEC	BAR	C	
0.0	10.0000	300.0000	1.0000
76.5314	10.0000	253.3406	1.0000
153.0628	10.0000	205.4341	1.0000
221.0725	10.0000	161.8276	DEW>1.0000
229.5943	10.0000	161.7108	0.9947
306.1257	10.0000	160.5942	0.9472
382.6571	10.0000	159.3401	0.9000
459.1885	10.0000	157.9223	0.8532
535.7200	10.0000	156.3082	0.8069
612.2514	10.0000	154.4561	0.7610
688.7828	10.0000	152.3122	0.7158
765.3142	10.0000	149.8066	0.6713
841.8457	10.0000	146.8469	0.6278
918.3771	10.0000	143.3094	0.5856
994.9085	10.0000	139.0263	0.5448
1071.4399	10.0000	133.7676	0.5061
1147.9714	10.0000	127.2153	0.4700
1224.5028	10.0000	118.9303	0.4372
1301.0342	10.0000	108.3177	0.4088
1377.5656	10.0000	94.6232	0.3860
1454.0970	10.0000	77.0675	0.3699
1530.6285	10.0000	55.3151	0.3607
1607.1599	10.0000	30.1338	0.3570

BLOCK: EV MODEL: VALVE

INLET STREAM: PRODHP
OUTLET STREAM: PRODLP
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***
IN OUT RELATIVE DIFF.

U-O-S BLOCK SECTION

BLOCK: EV MODEL: VALVE (CONTINUED)

TOTAL BALANCE			
MOLE(KMOL/HR)	0.604317	0.604317	0.00000
MASS(KG/HR)	10.4000	10.4000	0.00000
ENTHALPY(CAL/SEC)	-8552.01	-8552.01	0.106349E-14

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	78.3079	KG/HR
PRODUCT STREAMS CO2E	78.3079	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

*** INPUT DATA ***

VALVE OUTLET PRESSURE	BAR	1.20000
VALVE FLOW COEF CALC.		NO

FLASH SPECIFICATIONS:

NPHASE	2
MAX NUMBER OF ITERATIONS	30
CONVERGENCE TOLERANCE	0.000100000

*** RESULTS ***

VALVE PRESSURE DROP	BAR	7.80000

BLOCK: MIXER MODEL: MIXER

INLET STREAMS:	H2 CO2
OUTLET STREAM:	MIX
PROPERTY OPTION SET:	RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	RELATIVE DIFF.
TOTAL BALANCE			
MOLE(KMOL/HR)	0.993654	0.993654	0.00000
MASS(KG/HR)	10.4000	10.4000	0.00000
ENTHALPY(CAL/SEC)	-5230.93	-5230.93	0.00000

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.80000	KG/HR
PRODUCT STREAMS CO2E	8.80000	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

U-O-S BLOCK SECTION

BLOCK: MIXER MODEL: MIXER (CONTINUED)

*** INPUT DATA ***

TWO PHASE FLASH	
MAXIMUM NO. ITERATIONS	30
CONVERGENCE TOLERANCE	0.000100000
OUTLET PRESSURE: MINIMUM OF INLET STREAM PRESSURES	

BLOCK: PREHEAT MODEL: HEATER

INLET STREAM:	MIXHP
OUTLET STREAM:	R1IN
PROPERTY OPTION SET:	RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	RELATIVE DIFF.
TOTAL BALANCE			
MOLE(KMOL/HR)	0.993654	0.993654	0.00000
MASS(KG/HR)	10.4000	10.4000	0.00000
ENTHALPY(CAL/SEC)	-4720.00	-4313.49	-0.861259E-01

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.80000	KG/HR
PRODUCT STREAMS CO2E	8.80000	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

*** INPUT DATA ***

TWO PHASE TP FLASH		
SPECIFIED TEMPERATURE	C	450.000
SPECIFIED PRESSURE	BAR	10.0000
MAXIMUM NO. ITERATIONS		30
CONVERGENCE TOLERANCE		0.000100000

*** RESULTS ***

OUTLET TEMPERATURE	C	450.00
OUTLET PRESSURE	BAR	10.000
HEAT DUTY	CAL/SEC	406.51
OUTLET VAPOR FRACTION		1.0000

U-O-S BLOCK SECTION

BLOCK: PREHEAT MODEL: HEATER (CONTINUED)

V-L PHASE EQUILIBRIUM :

COMP	F(I)	X(I)	Y(I)	K(I)
CARBO-01	0.20123	0.20123	0.20123	MISSING
HYDRO-01	0.79877	0.79877	0.79877	MISSING

BLOCK: R1 MODEL: RGIBBS

INLET STREAM: R1IN
OUTLET STREAM: R1OUT
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	GENERATION	RELATIVE DIFF.
TOTAL BALANCE				
MOLE(KMOL/HR)	0.993654	0.634690	-0.358963	0.00000
MASS(KG/HR)	10.4000	10.4000		-0.427009E-14
ENTHALPY(CAL/SEC)	-4313.49	-6497.89		0.336171

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.80000	KG/HR
PRODUCT STREAMS CO2E	72.8616	KG/HR
NET STREAMS CO2E PRODUCTION	64.0616	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	64.0616	KG/HR

*** INPUT DATA ***

EQUILIBRIUM SPECIFICATIONS:
ONLY CHEMICAL EQUILIBRIUM IS CONSIDERED, THE FLUID PHASE IS VAPOR
SYSTEM TEMPERATURE C 450.00
TEMPERATURE FOR FREE ENERGY EVALUATION C 450.00
SYSTEM PRESSURE BAR 10.000

FLUID PHASE SPECIES IN PRODUCT LIST:
METHA-01 CARBO-01 WATER HYDRO-01 CARBO-02

ATOM MATRIX:

ELEMENT	H	C	O
METHA-01	4.00	1.00	0.00
CARBO-01	0.00	1.00	2.00
WATER	2.00	0.00	1.00
HYDRO-01	2.00	0.00	0.00
CARBO-02	0.00	1.00	1.00

U-O-S BLOCK SECTION

BLOCK: R1 MODEL: RGIBBS (CONTINUED)

*** RESULTS ***

TEMPERATURE	C	450.00
PRESSURE	BAR	10.000
HEAT DUTY	CAL/SEC	-2184.4
VAPOR FRACTION		1.0000
NUMBER OF FLUID PHASES		1

FLUID PHASE MOLE FRACTIONS:

PHASE	VAPOR
OF TYPE	VAPOR
PHASE FRACTION	1.000000
PLACED IN STREAM	R1OUT
METHA-01	0.2827861
CARBO-01	0.3139935E-01
WATER	0.5664309
HYDRO-01	0.1185249
CARBO-02	0.8586852E-03
KMOL/HR	0.6346903

BLOCK: R2 MODEL: RGIBBS

INLET STREAM: R1OUT
OUTLET STREAM: R2OUT
PROPERTY OPTION SET: RK-SOAVE STANDARD RKS EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	GENERATION	RELATIVE DIFF.
TOTAL BALANCE				
MOLE(KMOL/HR)	0.634690	0.604317	-0.303734E-01	-0.174924E-15
MASS(KG/HR)	10.4000	10.4000		-0.124687E-13
ENTHALPY(CAL/SEC)	-6497.89	-6944.85		0.643597E-01

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	72.8616	KG/HR
PRODUCT STREAMS CO2E	78.3079	KG/HR
NET STREAMS CO2E PRODUCTION	5.44632	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	5.44632	KG/HR

U-O-S BLOCK SECTION

BLOCK: R2 MODEL: RGIBBS (CONTINUED)

*** INPUT DATA ***

EQUILIBRIUM SPECIFICATIONS:
ONLY CHEMICAL EQUILIBRIUM IS CONSIDERED, THE FLUID PHASE IS VAPOR

SYSTEM TEMPERATURE	C	300.00
TEMPERATURE FOR FREE ENERGY EVALUATION	C	300.00
SYSTEM PRESSURE	BAR	10.000

FLUID PHASE SPECIES IN PRODUCT LIST:
METHA-01 CARBO-01 WATER HYDRO-01 CARBO-02

ATOM MATRIX:

ELEMENT	H	C	O
METHA-01	4.00	1.00	0.00
CARBO-01	0.00	1.00	2.00
WATER	2.00	0.00	1.00
HYDRO-01	2.00	0.00	0.00
CARBO-02	0.00	1.00	1.00

*** RESULTS ***

TEMPERATURE	C	300.00
PRESSURE	BAR	10.000
HEAT DUTY	CAL/SEC	-446.97
VAPOR FRACTION		1.0000
NUMBER OF FLUID PHASES		1

FLUID PHASE MOLE FRACTIONS:

PHASE	VAPOR
OF TYPE	VAPOR
PHASE FRACTION	1.000000
PLACED IN STREAM	R2OUT
METHA-01	0.3221296
CARBO-01	0.8740541E-02
HYDRO-01	0.2485396E-01
CARBO-02	0.8419133E-05
WATER	0.6442675
KMOL/HR	0.6043169

BLOCK: SEPAR MODEL: FLASH2

INLET STREAM:	PRODLP
OUTLET VAPOR STREAM:	CH4
OUTLET LIQUID STREAM:	H2O
PROPERTY OPTION SET:	RK-SOAVE STANDARD RKS EQUATION OF STATE

U-O-S BLOCK SECTION

BLOCK: SEPAR MODEL: FLASH2 (CONTINUED)

*** MASS AND ENERGY BALANCE ***

	IN	OUT	RELATIVE DIFF.
TOTAL BALANCE			
MOLE(KMOL/HR)	0.604317	0.604317	0.00000
MASS(KG/HR)	10.4000	10.4000	-0.211796E-13
ENTHALPY(CAL/SEC)	-8552.01	-8550.29	-0.201437E-03

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	78.3079	KG/HR
PRODUCT STREAMS CO2E	78.3079	KG/HR
NET STREAMS CO2E PRODUCTION	0.00000	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	0.00000	KG/HR

*** INPUT DATA ***

TWO PHASE TP FLASH		
SPECIFIED TEMPERATURE	C	26.0000
SPECIFIED PRESSURE	BAR	1.20000
MAXIMUM NO. ITERATIONS		30
CONVERGENCE TOLERANCE		0.000100000

*** RESULTS ***

OUTLET TEMPERATURE	C	26.000
OUTLET PRESSURE	BAR	1.2000
HEAT DUTY	CAL/SEC	1.7227
VAPOR FRACTION		0.36317

V-L PHASE EQUILIBRIUM :

COMP	F(I)	X(I)	Y(I)	K(I)
METHA-01	0.32213	0.63167E-06	0.88699	0.14042E+07
CARBO-01	0.87405E-02	0.58227E-06	0.24066E-01	41332.
WATER	0.64427	1.0000	0.20479E-01	0.20479E-01
HYDRO-01	0.24854E-01	0.78709E-08	0.68436E-01	0.86949E+07
CARBO-02	0.84191E-05	0.13310E-11	0.23182E-04	0.17418E+08

STREAM SECTION

CH4 CO2 H2 H2O MIX

STREAM ID	CH4	CO2	H2	H2O	MIX
FROM :	SEPAR	----	----	SEPAR	MIXER
TO :	----	MIXER	MIXER	----	COMPR
SUBSTREAM: MIXED					
PHASE:	VAPOR	VAPOR	VAPOR	LIQUID	VAPOR
COMPONENTS: KMOL/HR					
METHA-01	0.1947	0.0	0.0	2.4310-07	0.0
CARBO-01	5.2818-03	0.2000	0.0	2.2409-07	0.2000
WATER	4.4946-03	0.0	0.0	0.3848	0.0
HYDRO-01	1.5020-02	0.0	0.7937	3.0291-09	0.7937
CARBO-02	5.0878-06	0.0	0.0	5.1222-13	0.0
TOTAL FLOW:					
KMOL/HR	0.2195	0.2000	0.7937	0.3848	0.9937
KG/HR	3.4669	8.8000	1.6000	6.9331	10.4000
L/MIN	75.6731	80.8020	322.6147	0.1164	403.5401
STATE VARIABLES:					
TEMP C	26.0000	20.0000	20.0000	26.0000	19.8340
PRES BAR	1.2000	1.0000	1.0000	1.2000	1.0000
VFRAC	1.0000	1.0000	1.0000	0.0	1.0000
LFRAC	0.0	0.0	0.0	1.0000	0.0
SFRAC	0.0	0.0	0.0	0.0	0.0
ENTHALPY:					
CAL/MOL	-1.9229+04	-9.4042+04	-34.0833	-6.9017+04	-1.8952+04
CAL/GM	-1217.2863	-2136.8516	-16.9074	-3831.0035	-1810.7064
CAL/SEC	-1172.2661	-5223.4151	-7.5144	-7378.0259	-5230.9295
ENTROPY:					
CAL/MOL-K	-16.6817	0.5420	-9.0341-02	-40.8408	1.0323
CAL/GM-K	-1.0560	1.2314-02	-4.4815-02	-2.2670	9.8627-02
DENSITY:					
MOL/CC	4.8337-05	4.1244-05	4.1003-05	5.5119-02	4.1039-05
GM/CC	7.6356-04	1.8151-03	8.2658-05	0.9930	4.2953-04
AVG MW	15.7966	44.0098	2.0159	18.0153	10.4664

STREAM SECTION

MIXHP PRODHP PRODLP R1IN R1OUT

STREAM ID	MIXHP	PRODHP	PRODLP	R1IN	R1OUT
FROM :	COMPR	COOLER	EV	PREHEAT	R1
TO :	PREHEAT	EV	SEPAR	R1	R2
SUBSTREAM: MIXED					
PHASE:	VAPOR	MIXED	MIXED	VAPOR	VAPOR
COMPONENTS: KMOL/HR					
METHA-01	0.0	0.1947	0.1947	0.0	0.1795
CARBO-01	0.2000	5.2821-03	5.2821-03	0.2000	1.9929-02
WATER	0.0	0.3893	0.3893	0.0	0.3595
HYDRO-01	0.7937	1.5020-02	1.5020-02	0.7937	7.5227-02
CARBO-02	0.0	5.0878-06	5.0878-06	0.0	5.4500-04
TOTAL FLOW:					
KMOL/HR	0.9937	0.6043	0.6043	0.9937	0.6347
KG/HR	10.4000	10.4000	10.4000	10.4000	10.4000
L/MIN	74.2146	10.0692	75.6223	99.8826	63.4575
STATE VARIABLES:					
TEMP C	263.6936	30.0000	25.5260	450.0000	450.0000
PRES BAR	10.0000	9.0000	1.2000	10.0000	10.0000
VFRAC	1.0000	0.3571	0.3629	1.0000	1.0000
LFRAC	0.0	0.6429	0.6371	0.0	0.0
SFRAC	0.0	0.0	0.0	0.0	0.0
ENTHALPY:					
CAL/MOL	-1.7101+04	-5.0946+04	-5.0946+04	-1.5628+04	-3.6856+04
CAL/GM	-1633.8464	-2960.3128	-2960.3128	-1493.1299	-2249.2682
CAL/SEC	-4720.0006	-8552.0147	-8552.0147	-4313.4865	-6497.8858
ENTROPY:					
CAL/MOL-K	1.0323	-33.5406	-32.1013	3.3858	-5.9516
CAL/GM-K	9.8627-02	-1.9490	-1.8653	0.3235	-0.3632
DENSITY:					
MOL/CC	2.2315-04	1.0003-03	1.3319-04	1.6580-04	1.6670-04
GM/CC	2.3356-03	1.7214-02	2.2921-03	1.7354-03	2.7315-03
AVG MW	10.4664	17.2095	17.2095	10.4664	16.3859

STREAM SECTION

R2OUT WIN WOUT

STREAM ID	R2OUT	WIN	WOUT
FROM :	R2	----	COOLER
TO :	COOLER	COOLER	----
SUBSTREAM: MIXED			
PHASE:	VAPOR	LIQUID	LIQUID
COMPONENTS: KMOL/HR			
METHA-01	0.1947	0.0	0.0
CARBO-01	5.2821-03	0.0	0.0
WATER	0.3893	4.4407	4.4407
HYDRO-01	1.5020-02	0.0	0.0
CARBO-02	5.0878-06	0.0	0.0
TOTAL FLOW:			
KMOL/HR	0.6043	4.4407	4.4407
KG/HR	10.4000	80.0000	80.0000
L/MIN	47.4454	1.3286	1.4160
STATE VARIABLES:			
TEMP C	300.0000	15.0000	77.6506
PRES BAR	10.0000	2.0000	2.0000
VFRAC	1.0000	0.0	0.0
LFRAC	0.0	1.0000	1.0000
SFRAC	0.0	0.0	0.0
ENTHALPY:			
CAL/MOL	-4.1371+04	-6.9245+04	-6.7942+04
CAL/GM	-2403.9882	-3843.7015	-3771.3793
CAL/SEC	-6944.8548	-8.5416+04	-8.3808+04
ENTROPY:			
CAL/MOL-K	-10.3360	-41.6213	-37.5298
CAL/GM-K	-0.6006	-2.3103	-2.0832
DENSITY:			
MOL/CC	2.1229-04	5.5706-02	5.2267-02
GM/CC	3.6533-03	1.0036	0.9416
AVG MW	17.2095	18.0153	18.0153

PROBLEM STATUS SECTION

BLOCK STATUS

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*****************************************************************************
*                                                                           *
* Calculations were completed normally                                      *
*                                                                           *
* All Unit Operation blocks were completed normally                         *
*                                                                           *
* All streams were flashed normally                                         *
*                                                                           *
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