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RUN CONTROL SECTION

RUN CONTROL INFORMATION

THIS COPY OF ASPEN PLUS LICENSED TO CZECH TECHNICAL UNIVERSI

TYPE OF RUN: EDIT

INPUT FILE NAME: _4032zom.inm

INPUT PROBLEM DATA FILE NAME : _4032zom

OUTPUT PROBLEM DATA FILE NAME: _4744dir

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

FLWSHEET SECTION

FLWSHEET CONNECTIVITY BY STREAMS

STREAM	SOURCE	DEST	STREAM	SOURCE	DEST
IN	----	PFREAC	OUT	PFREAC	----

FLWSHEET CONNECTIVITY BY BLOCKS

BLOCK	INLETS	OUTLETS
PFREAC	IN	OUT

COMPUTATIONAL SEQUENCE

SEQUENCE USED WAS:

PFREAC

OVERALL FLOWSHEET BALANCE

	*** MASS AND ENERGY BALANCE ***			
	IN	OUT	GENERATION	RELATIVE DIFF.
CONVENTIONAL COMPONENTS				
(KMOL/HR)				
METHA-01	0.00000	0.199664	0.199664	0.00000
CARBO-01	0.199718	0.547167E-04	-0.199664	-0.276522E-16
WATER	0.00000	0.399327	0.399327	0.00000
HYDRO-01	0.798874	0.218867E-03	-0.798655	0.138193E-15
CARBO-02	0.00000	0.00000	0.00000	0.00000
TOTAL BALANCE				
MOLE (KMOL/HR)	0.998592	0.599265	-0.399327	0.111179E-15
MASS (KG/HR)	10.4000	10.4000		0.170804E-15
ENTHALPY (CAL/SEC)	-4633.97	-6991.67		0.337216

*** CO2 EQUIVALENT SUMMARY ***		
FEED STREAMS CO2E	8.78957	KG/HR
PRODUCT STREAMS CO2E	80.0813	KG/HR
NET STREAMS CO2E PRODUCTION	71.2918	KG/HR
UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	71.2918	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

REACTION SECTION

REACTION: R-1 TYPE: GENERAL

Unit operations referencing this reaction model:

Reactor Name: PFREAC Block Type: RPLUG

U-O-S BLOCK SECTION

BLOCK: PFREAC MODEL: RPLUG

INLET STREAM: IN
 OUTLET STREAM: OUT
 PROPERTY OPTION SET: RKSMHV2 RKS-MHV2 EQUATION OF STATE

*** MASS AND ENERGY BALANCE ***

	IN	OUT	GENERATION	RELATIVE DIFF.
TOTAL BALANCE				
MOLE (KMOL/HR)	0.998592	0.599265	-0.399327	0.111179E-15
MASS (KG/HR)	10.4000	10.4000		0.170804E-15
ENTHALPY (CAL/SEC)	-4633.97	-6991.67		0.337216

*** CO2 EQUIVALENT SUMMARY ***

FEED STREAMS CO2E	8.78957	KG/HR
PRODUCT STREAMS CO2E	80.0813	KG/HR
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UTILITIES CO2E PRODUCTION	0.00000	KG/HR
TOTAL CO2E PRODUCTION	71.2918	KG/HR

*** INPUT DATA ***

REACTOR TYPE:

SPECIFIED TEMPERATURE
 TWO-PHASE
 REACTOR TUBE LENGTH METER 1.0000
 REACTOR DIAMETER METER 0.30000
 REACTOR RISE METER 0.0000
 NUMBER OF REACTOR TUBES 1
 REACTOR VOLUME L 70.686
 PRESSURE DROP OPTION: SPECIFIED
 HOLDUP OPTION: NO-SLIP
 ERROR TOLERANCE 0.10000E-03
 INTEGRATION METHOD GEAR
 CORRECTOR METHOD NEWTON
 INITIAL STEP SIZE FACTOR 0.10000E-01
 CORRECTOR TOLERANCE FACTOR 0.10000
 MAXIMUM NUMBER OF STEPS 1000

CONSTANT REACTOR TEMPERATURE SET TO THE (MIXED)
 INLET PROCESS STREAM TEMPERATURE OF 299.90 C

REACTION PARAGRAPH ID: R-1 TYPE: GENERAL
 GLOBAL BASES:
 KBASIS MOLE-GAMMA
 CBASIS MOLARITY
 SBASIS GLOBAL

U-O-S BLOCK SECTION

BLOCK: PFREAC MODEL: RPLUG (CONTINUED)
 STOICHIOMETRY:

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REACTION NUMBER:      1
SUBSTREAM: MIXED
METHA-01    1.0000    CARBO-01    -1.0000    WATER    2.0000    HYDRO-01    -
4.0000

REACTION NUMBER:      2
SUBSTREAM: MIXED
CARBO-01    -1.0000    WATER    1.0000    HYDRO-01    -1.0000    CARBO-02
1.0000

REACTION NUMBER:      3
SUBSTREAM: MIXED
METHA-01    1.0000    WATER    1.0000    HYDRO-01    -3.0000    CARBO-02    -
1.0000
    
```

REAC-DATA ENTRIES:

REACTION NO	TYPE	PHASE	DELT C	BASIS
1	KINETIC	V	0.0000	MOLARITY
2	KINETIC	V	900.00	MOLARITY
3	KINETIC	V	0.0000	MOLARITY

*** RESULTS ***

REACTOR DUTY	CAL/SEC	-2357.7
RESIDENCE TIME	HR	0.12384E-01
REACTOR MINIMUM TEMPERATURE	C	299.90
REACTOR MAXIMUM TEMPERATURE	C	299.90

*** RESULTS PROFILE (PROCESS STREAM) ***

LENGTH METER	PRESSURE BAR	TEMPERATURE C	VAPOR FRAC	RES-TIME HR
0.0000	5.0000	299.90	1.0000	0.0000
0.10000	5.0000	299.90	1.0000	0.11724E-02
0.20000	5.0000	299.90	1.0000	0.24182E-02
0.30000	5.0000	299.90	1.0000	0.36640E-02
0.40000	5.0000	299.90	1.0000	0.49098E-02
0.50000	5.0000	299.90	1.0000	0.61556E-02
0.60000	5.0000	299.90	1.0000	0.74013E-02
0.70000	5.0000	299.90	1.0000	0.86471E-02
0.80000	5.0000	299.90	1.0000	0.98929E-02
0.90000	5.0000	299.90	1.0000	0.11139E-01
1.0000	5.0000	299.90	1.0000	0.12384E-01

LENGTH METER	DUTY CAL/SEC	LIQUID HOLDUP
0.0000	0.0000	0.0000
0.10000	-2357.7	0.0000
0.20000	-2357.7	0.0000
0.30000	-2357.7	0.0000
0.40000	-2357.7	0.0000
0.50000	-2357.7	0.0000
0.60000	-2357.7	0.0000
0.70000	-2357.7	0.0000
0.80000	-2357.7	0.0000
0.90000	-2357.7	0.0000
1.0000	-2357.7	0.0000

U-O-S BLOCK SECTION

BLOCK: PFREAC MODEL: RPLUG (CONTINUED)

*** TOTAL MOLE FRACTION PROFILE (PROCESS STREAM) ***

LENGTH METER	METHA-01	CARBO-01	WATER	HYDRO-01
0.0000	0.0000	0.20000	0.0000	0.80000
0.10000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.20000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.30000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.40000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.50000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.60000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.70000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.80000	0.33318	0.91306E-04	0.66636	0.36523E-03
0.90000	0.33318	0.91306E-04	0.66636	0.36523E-03
1.0000	0.33318	0.91306E-04	0.66636	0.36523E-03

*** TOTAL MASS FRACTION PROFILE (PROCESS STREAM) ***

LENGTH METER	METHA-01	CARBO-01	WATER	HYDRO-01
0.0000	0.0000	0.84515	0.0000	0.15485
0.10000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.20000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.30000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.40000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.50000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.60000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.70000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.80000	0.30800	0.23155E-03	0.69173	0.42424E-04
0.90000	0.30800	0.23155E-03	0.69173	0.42424E-04
1.0000	0.30800	0.23155E-03	0.69173	0.42424E-04

STREAM SECTION

CO2 H2 IN OUT

STREAM ID	CO2	H2	IN	OUT
FROM :	----	----	----	PFREAC
TO :	----	----	PFREAC	----
SUBSTREAM: MIXED				
PHASE:	VAPOR	VAPOR	VAPOR	VAPOR
COMPONENTS: KMOL/HR				
METHA-01	0.0	0.0	0.0	0.1997
CARBO-01	0.1000	0.0	0.1997	5.4717-05
WATER	0.0	0.0	0.0	0.3993
HYDRO-01	0.0	0.4000	0.7989	2.1887-04
CARBO-02	0.0	0.0	0.0	0.0
TOTAL FLOW:				
KMOL/HR	0.1000	0.4000	0.9986	0.5993
KG/HR	4.4010	0.8064	10.4000	10.4000
L/MIN	21.4616	85.8304	79.5424	94.5668
STATE VARIABLES:				
TEMP C	500.0000	500.0000	299.9000	299.8962
PRES BAR	5.0000	5.0000	10.0000	5.0000
VFRAC	1.0000	1.0000	1.0000	1.0000
LFRAC	0.0	0.0	0.0	0.0
SFRAC	0.0	0.0	0.0	0.0
ENTHALPY:				
CAL/MOL	-8.8871+04	3323.1509	-1.6706+04	-4.2002+04
CAL/GM	-2019.3382	1648.4865	-1604.0657	-2420.1950
CAL/SEC	-2468.6298	369.2390	-4633.9676	-6991.6745
ENTROPY:				
CAL/MOL-K	7.5482	3.4830	1.5318	-9.6462
CAL/GM-K	0.1715	1.7278	0.1471	-0.5558
DENSITY:				
MOL/CC	7.7658-05	7.7673-05	2.0924-04	1.0562-04
GM/CC	3.4177-03	1.5658-04	2.1791-03	1.8329-03
AVG MW	44.0098	2.0159	10.4147	17.3546

PROBLEM STATUS SECTION

BLOCK STATUS

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