Yields

Coke & liquid yields may be related to wt% CCR of feed (scaled 0 to 100)

$$\text{Coke Yield (wt\%)} = 1.6 \times (\text{wt\% CCR})$$

$$\text{Gas (C4-) (wt\%)} = 7.8 + 0.144 \times (\text{wt\% CCR})$$

$$\text{Gasoline (wt\%)} = 11.29 + 0.343 \times (\text{wt\% CCR})$$

$$\text{Gas Oil (wt\%)} = 100 - (\text{wt\% Coke}) - (\text{wt\% Gas}) - (\text{wt\% Gasoline})$$

Coker gasoline & gas oil splits between light & heavy

- Light & heavy gasoline split: 33.22/66.78 wt/wt @ 65° & 50°API, respectively
- Light & heavy gas oil split: 64.5/35.5 wt/wt @ 30° & 13°API, respectively

Vol% yields for <u>total</u> coker gasoline & gas oil fractions

$$\text{Gasoline (vol\%)} = \frac{186.5}{131.5 + °\text{API}} \times (\text{wt\% Gasoline})$$

$$\text{Gas Oil (vol\%)} = \frac{155.5}{131.5 + °\text{API}} \times (\text{wt\% Gas Oil})$$

Updated: July 5, 2017

Product Light Ends & Sulfur Distribution

Estimated product distribution — Tables 5.8 & 5.9

Typical Gas Composition	
Component	Mole%
Methane	51.4
Ethene	1.5
Ethane	15.9
Propene	3.1
Propane	8.2
Butenes	2.4
I-Butane	1.0
N-Butane	2.6
H2	13.7
CO2	0.2
Total	100.0

Typical Distributions		
	Sulfur (%)	Nitrogen (%)
Gas	30	—
Light Naphtha	1.7	
Heavy Naphtha	3.3	1
LCGO	15.4	2
HCGO	19.6	22
Coke	30	75
Total	100	100

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000				1.0	29.3	6.47	60	160		
Coker Gas											
Light Coker Gasoline											
Heavy Coker Gasoline											
Light Coker Gas Oil											
Heavy Coker Gas Oil											
Coke											
Coker Total											
Coker Gasoline											
Coker Gas Oil											

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas			
Light Naphtha			
Heavy Naphtha			
LCGO			
HCGO			
Coke			
Total			

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane						
Ethene						
Ethane						
Propene						
Propane						
Butenes						
I-Butane						
N-Butane						
H2						
CO2						
H2S						
Sulfur						
Total						
w/o Sulfur						
Corrected in units of MMscf/day						

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas											
Light Coker Gasoline											
Heavy Coker Gasoline											
Light Coker Gas Oil											
Heavy Coker Gas Oil											
Coke											
Coker Total											
Coker Gasoline											
Coker Gas Oil											

Determine mass feed based on density of vacuum resid.

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas			
Light Naphtha			
Heavy Naphtha			
LCGO			
HCGO			
Coke			
Total			

Coker Gas Composition

Component	Mol%
Methane	
Ethene	
Ethane	
Propene	
Propane	
Butenes	
I-Butane	
N-Butane	
H2	
CO2	
H2S	
Sulfur	
Total	
w/o Sulfur	
Corrected in units of MMscf/day	

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas											
Light Coker Gasoline											
Heavy Coker Gasoline											
Light Coker Gas Oil											
Heavy Coker Gas Oil											
Coke											
Coker Total											
Coker Gasoline											
Coker Gas Oil											

Set the distribution factors for the sulfur & the gas composition of the non-sulfur portion of the coker gas.

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4	56.108				
I-Butane	1.0	58.123				
N-Butane	2.6	58.123				
H2	13.7	2.016				
CO2	0.2	44.010				
H2S		34.080				
Sulfur		32.064				
Total	100.0					
w/o Sulfur		22.171				
Corrected in units of MMscf/day						

Updated: July 5, 2017

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas											
Light Coker Gasoline			0.7201	6.004	65.0						
Heavy Coker Gasoline			0.7796	6.500	50.0						
Light Coker Gas Oil			0.8762	7.305	30.0						
Heavy Coker Gas Oil			0.9792	8.164	13.0						
Coke											
Coker Total											
Coker Gasoline											
Coker Gas Oil											

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol
Methane	51.4	16
Ethene	1.5	28
Ethane	15.9	30
Propene	3.1	42
Propane	8.2	44
Butenes	2.4	56
I-Butane	1.0	58.123
N-Butane	2.6	58.123
H2	13.7	2.016
CO2	0.2	44.010
H2S		34.080
Sulfur		32.064
Total	100.0	
w/o Sulfur		22.171
Corrected in units of MMscf/day		

Set the expected gravities for the light & heavy gasoline & gas oil fractions.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas										12.02	
Light Coker Gasoline			0.7201	6.004	65.0					7.09	
Heavy Coker Gasoline			0.7796	6.500	50.0					14.25	
Light Coker Gas Oil			0.8762	7.305	30.0					12.75	
Heavy Coker Gas Oil			0.9792	8.164	13.0					7.02	
Coke										46.88	
Coker Total										100.00	
Coker Gasoline										21.34	*30.04*
Coker Gas Oil										19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4	56.108				
I-Butane	1.0	58.123				
N-Butane	2.6	58.123				
H2	13.7	2.016				
CO2	0.2	44.010				
H2S		34.080				
Sulfur		32.064				
Total	100.0					
w/o Sulfur		22.171				
Corrected in units of MMscf/day						

Determine yield percentages based on formulas. Gas Oil Yield is calculated by difference from 100%.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818								12.02	
Light Coker Gasoline		1,060,381	0.7201	6.004	65.0					7.09	
Heavy Coker Gasoline		2,131,615	0.7796	6.500	50.0					14.25	
Light Coker Gas Oil		1,906,499	0.8762	7.305	30.0					12.75	
Heavy Coker Gas Oil		1,049,313	0.9792	8.164	13.0					7.02	
Coke		7,012,254								46.88	
Coker Total		14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997								21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812								19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4	56				
I-Butane	1.0	58				
N-Butane	2.6	58				
H2	13.7	2				
CO2	0.2	44				
H2S		34				
Sulfur		32				
Total	100.0					
w/o Sulfur		22				
Corrected in units of MMscf/day						

Determine amounts based on yield percentages.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818								12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0					7.09	
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0					14.25	
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0					12.75	
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0					7.02	
Coke		7,012,254								46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997								21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812								19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane						
Butenes						
I-Butane						
N-Butane						
H2	1					
CO2						
H2S						
Sulfur						
Total	10					
w/o Sulfur		22.171				
Corrected in units of MMscf/day						

Determine volumetric rate based on mass rate & density.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818								12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0					7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0					14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0					12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0					7.02	7.65
Coke		7,012,254								46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997								21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812								19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4	56.108				
I-Butane	1.0	58.123				
N-Butane	2.6	58.123				
H2	13.7	2.016				
CO2	0.2	44.010				
H2S		34.080				
Sulfur		32.064				
Total	100.0					
w/o Sulfur		22.171				
Corrected in units of MMscf/day						

Determine vol yieldt% based on mass & volume rates.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818								12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0					7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0					14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0					12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0					7.02	7.65
Coke		7,012,254								46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0					21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0					19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0		
Light Naphtha	1.7		
Heavy Naphtha	3.3		
LCGO	15.4		
HCGO	19.6		
Coke	30.0		
Total	100.0		

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4	56.108				
I-Butane	1.0	58.123				
N-Butane	2.6					
H2	13.7					
CO2	0.2					
H2S						
Sulfur						
Total	100.0					
w/o Sulfur						
Corrected in u						

Determine densities based on volumes & mass produced.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818								12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0					7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0					14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0					12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0					7.02	7.65
Coke		7,012,254								46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0					21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0					19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0	290,332	9,055
Light Naphtha	1.7	16,452	
Heavy Naphtha	3.3	31,937	
LCGO	15.4	149,037	
HCGO	19.6	189,684	
Coke	30.0	290,332	
Total	100.0	967,775	

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
Propene	3.1	42.081				
Propane	8.2	44.097				
Butenes	2.4					
I-Butane	1.0					
N-Butane	2.6					
H2	13.7					
CO2	0.2					
H2S						
Sulfur						
Total	100.0					
w/o Sulfur						
Corrected in units of MMscf/day						

Determine the distribution of sulfur based on the typical factors.

Updated: July 5, 2017

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818					16.15			12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0		1.55			7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0		1.50			14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0		7.82			12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0		18.08			7.02	7.65
Coke		7,012,254					4.14			46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0		1.52			21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0		11.46			19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0	290,332	9,055
Light Naphtha	1.7	16,452	
Heavy Naphtha	3.3	31,937	
LCGO	15.4	149,037	
HCGO	19.6	189,684	
Coke	30.0	290,332	
Total	100.0	967,775	

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043				
Ethene	1.5	28.054				
Ethane	15.9	30.070				
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Butenes	2.4	56.108				
I-Butane	1.0	58.123				
N-Butane	2.6	58.123				
H2	13.7	2.016				
CO2	0.2	44.010				
H2S		34.080				
Sulfur		32.064				
Total	100.0					
w/o Sulfur		22.171				
Corrected in units of MMscf/day						

Scale the sulfur content of the products as wt%.

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Example Yield Problem

Split up the non-sulfur portion of the coker gas according to the typical composition.

Coker Calculations Using Gary et. al. Correlations

			SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
			1.0679	8.904	1.0	29.3	6.47	60	160		
							16.15			12.02	
			0.7201	6.004	65.0		1.55			7.09	10.51
			0.7796	6.500	50.0		1.50			14.25	19.52
			0.8762	7.305	30.0		7.82			12.75	15.54
			0.9792	8.164	13.0		18.08			7.02	7.65
							4.14			46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0		1.52			21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0		11.46			19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0	290,332	9,055
Light Naphtha	1.7	16,452	
Heavy Naphtha	3.3	31,937	
LCGO	15.4	149,037	
HCGO	19.6	189,684	
Coke	30.0	290,332	
Total	100.0	967,775	

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043	34,948			
Ethene	1.5	28.054	1,020			
Ethane	15.9	30.070	10,811			
Propene	3.1	42.081	2,108			
Propane	8.2	44.097	5,575			
Butenes	2.4	56.108	1,632			
I-Butane	1.0	58.123	680			
N-Butane	2.6	58.123	1,768			
H2	13.7	2.016	9,315			
CO2	0.2	44.010	136			
H2S		34.080				
Sulfur		32.064	9,055			
Total	100.0		77,047			
w/o Sulfur		22.171	67,992			
Corrected in units of MMscf/day						

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818					16.15			12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0		1.55			7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0		1.50			14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0		7.82			12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0		18.08			7.02	7.65
Coke		7,012,254					4.14			46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0		1.52			21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0		11.46			19.76	*23.19*

Sulfur Distribution

	Sulfur (%)	lb/day	mol/day
Gas	30.0	290,332	9,055
Light Naphtha	1.7	16,452	
Heavy Naphtha	3.3	31,937	
LCGO	15.4	149,037	
HCGO	19.6	189,684	
Coke	30.0	290,332	

Coker Gas Composition

Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043	34,948	34,948	51.4	560,661
Ethene	1.5	28.054	1,020	1,020	1.5	28,611
Ethane	15.9	30.070	10,811	10,811	15.9	325,075
Propene	3.1	42.081	2,108	2,108	3.1	88,696
Propane	8.2	44.097	5,575	5,575	8.2	245,853
Butenes	2.4	56.108	1,632	1,632	2.4	91,557
I-Butane	1.0	58.123	680	680	1.0	39,519
N-Butane	2.6	58.123	1,768	1,768	2.6	102,750
H2	13.7	2.016	9,315	260	0.4	524
CO2	0.2	44.010	136	136	0.2	5,985
H2S		34.080		9,055	13.3	308,586
Sulfur		32.064	9,055			
Total	100.0		77,047	67,992	100.0	1,797,818
w/o Sulfur		22.171	67,992			1,507,485
Corrected in units of MMscf/day				25.80		

Correct for presence of sulfur. Reduce moles of H_2 & replace with appropriate amount of H_2S.

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Example Yield Problem

Coker Calculations Using Gary et. al. Correlations

	bbl/day	lb/day	SpGr	lb/gal	°API	CCR wt%	Sulfur wt%	Nickel ppm	Vanadium ppm	Yield wt%	Yield vol%
Vac Resid Feed	40,000	14,957,881	1.0679	8.904	1.0	29.3	6.47	60	160		
Coker Gas		1,797,818					16.15			12.02	
Light Coker Gasoline	4,205	1,060,381	0.7201	6.004	65.0		1.55			7.09	10.51
Heavy Coker Gasoline	7,808	2,131,615	0.7796	6.500	50.0		1.50			14.25	19.52
Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0		7.32			12.75	15.54
Heavy Coker Gas Oil	3,060	1,049,313	0.9792	8.164	13.0		18.08			7.02	7.65
Coke		7,012,254					4.14	128	341	46.88	
Coker Total	21,288	14,957,881								100.00	
Coker Gasoline	*12,015*	3,191,997	0.7587	6.326	55.0		1.52			21.34	*30.04*
Coker Gas Oil	*9,276*	2,955,812	0.9100	7.587	24.0		11.46			19.76	*23.19*

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Component	Mol%	Mol Wt	mol/day	Corrected mol/day	Corrected Mol%	Corrected lb/day
Methane	51.4	16.043	34,948	34,948	51.4	560,661
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Ethane	15.9	30.070	10,811	10,811	15.9	325,075
Propene	3.1	42.081	2,108	2,108	3.1	88,696
Propane	8.2	44.097	5,575	5,575	8.2	245,853
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Scale metals assuming all go to the coke.

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Light Coker Gas Oil	6,214	1,906,499	0.8762	7.305	30.0		7.82			12.75	15.54
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Coke		7,012,254					4.14	128	341	46.88	
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