

OGJ 2022 Worldwide Refining Survey: Global

Country	Thermal Processes						Catalytic Cracking –		Catalytic Reforming		Catalytic Hydrocracking				Catalytic Hydrotreating										Isomerization						Asphalt (incl. road oil)				
	Crude	Vacuum	Fluid coking (incl. flexicoking)	Delayed coking	Visbreak-ing	Other	Fresh feed	Recycled feed	Low-pressure	High-pressure	Distillate	Gas oil	Residual	Other	Naphtha/Reformer feed desulfurization	Gasoline desulfur-ization	Kerosine/Jet desul-furization	Diesel desulfur-ization	Other distillate desulfur-ization	Resid desulfur-ization	Heavy gas oil desulfur-ization	Other desulfur-ization	Other hydro-treating	Alkylation	Aromatics	C4 feed	C5/C6 feed	C8 feed	Lubes	Hydrogen	Coke	Sulfur	Asphalt (incl. road oil)		
	b/cd																													MMcfd	tonne/day	tonne/day	b/d		
ALGERIA	555,000	10,894	0	0	0	0	0	6,024	90,908	0	0	0	0	0	78,480	0	0	0	0	0	0	0	3,470	0	0	0	0	0	0	0.0	0	0	0		
ANGOLA	65,000	2,500	8,700	0	0	0	0	0	2,400	0	0	0	0	0	3,800	2,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	950		
ARGENTINA	648,600	787,475	3,500	88,653	0	30,500	134,710	0	38,500	0	17,000	0	0	0	30,500	14,600	0	28,900	17,700	0	0	0	48,020	2,300	0	0	2,700	10,000	4,900	19.0	3,810	108	7,500		
AUSTRALIA	312,600	9,900	0	0	0	0	61,371	40,000	11,000	43,239	0	0	0	0	72,739	0	0	9,000	91,620	0	0	0	10,000	8,621	1,000	0	0	16,200	0	37.3	0	0	3,000		
AUSTRIA	193,697	74,865	0	0	0	11,322	25,453	0	20,273	0	0	51,976	0	0	36,163	0	26,899	58,228	0	0	0	0	0	0	0	19,976	0	0	22,983.0	0	313	3,228			
AZERBAIJAN	120,493	71,043	0	38,529	0	0	57,750	0	0	24,466	0	0	0	0	25,300	0	0	0	0	0	0	42,192	0	930	0	0	0	0	0.0	1,400	0	0			
BAHRAIN	267,000	198,170	0	0	21,600	0	35,100	0	13,500	0	54,000	0	0	0	13,500	0	0	0	63,000	0	0	0	0	0	0	0	0	0	134.0	0	340	8,730			
BANGLADESH	30,123	4,016	0	10,483	10,483	0	0	0	1,406	0	1,145	0	0	0	2,008	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	0	0	0			
BELARUS	500,000	145,000	0	0	36,000	0	44,000	0	44,000	0	0	0	0	10,000	34,500	0	0	0	115,000	0	0	0	80,000	0	2,785	0	0	4,500	3,760	7.6	0	0	0		
BELGIUM	653,839	82,502	0	0	0	42,300	126,535	0	0	57,500	50,916	0	0	0	134,608	0	45,200	75,188	0	52,500	0	0	22,300	9,600	11,500	0	0	0	0	0.0	0	758	1,250		
BOLIVIA	52,350	2,200	0	0	0	0	0	0	0	12,100	0	0	0	0	6,400	0	0	0	0	0	0	0	499	0	0	0	0	0	0	14.0	0	0	0		
BOSNIA	84,345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0			
BRAZIL	2,177,000	804,740	0	115,319	0	0	501,887	0	21,386	0	0	0	0	0	10,528	31,054	28,125	200,041	0	0	11,698	0	0	6,290	0	0	0	20,009	126.0	6,974	771	27,100			
BRUNEI	169,258	0	18,795	0	0	0	0	0	5,700	0	42,192	0	0	0	63,611	0	28,137	44,904	0	0	0	0	0	0	29,860	0	0	0	0	0	0	1,992	0		
BULGARIA	139,000	76,900	26,400	0	0	0	37,100	0	14,400	0	0	0	0	39,000	158,000	0	0	0	0	0	0	0	6,900	0	1,700	0	0	0	91.3	0	509	5,400			
CAMEROON	42,000	22,966	0	0	0	0	0	0	8,000	0	0	0	0	0	10,000	0	0	17,000	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0			
CANADA	1,714,850	353,100	34,200	20,400	20,000	4,500	469,500	0	124,200	50,850	43,000	75,500	18,000	74,700	206,600	96,200	95,500	226,600	0	0	38,000	83,800	28,300	42,700	34,200	18,500	10,000	27,090	0	281.0	2,061	23,606	53,600		
CHILE	220,000	85,050	13,860	0	0	7,560	50,540	0	26,460	0	50,400	0	0	0	0	0	0	0	0	0	0	0	910	0	8,510	0	0	0	0.0	656	90	0			
CHINA	13,302,248	1,412,823	52,214	731,351	0	0	1,557,644	82,954	900,709	118,490	655,204	209,190	180,260	160,852	655,118	318,044	46,931	661,785	0	330,921	143,797	39,252	290,619	114,030	263,943	41,422	2,320	2,000	29,000	475.6	10,760	8,315	83,235		
CHINA (TAIWAN)	1,310,000	248,500	0	51,000	0	0	217,900	0	0	90,000	0	0	25,000	0	0	96,500	42,000	126,000	0	296,000	77,000	0	0	14,200	14,000	0	0	26,000	15,300	341.0	4,522	3,745	15,270		
COLOMBIA	378,600	141,000	0	0	52,000	0	90,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19,800	2,100	2,200	0	0	0	1,400	18.0	0	0	0			
CONGO, REPUBLIC of	21,000	8,000	0	0	0	0	0	0	2,000	0	2,000	0	0	0	3,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0			
COSTA RICA	24,000	600	0	0	0	6,500	0	0	1,200	0	0	0	0	0	2,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0			
CROATIA	134,551	54,000	0	5,000	12,001	0	30,002	0	29,454	0	0	12,264	0	0	15,000	0	0	28,476	0	0	0	0	0	0	0	0	4,660	0	0.0	200	60	0			
CUBA	134,200	22,100	0	0	0	0	12,500	0	22,100	0	0	0	0	0	23,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0			
CZECH REPUBLIC	176,000	71,870	0	0	14,000	0	24,000	0	16,850	10,620	30,000	0	6,000	0	37,870	4,500	12,000	43,410	0	0	0	0	0	0	660	0	4,510	2,700	1,880	112.0	0	144	7,880		
DENMARK	178,732	22,000	0	0	28,000	39,600	0	0	8,600	0	0	0	0	0																					

OGJ 2022 Worldwide Refining Survey: Global

Country	Thermal Processes						Catalytic Cracking –		Catalytic Reforming		Catalytic Hydrocracking				Catalytic Hydrotreating										Isomerization						Lubes	Hydrogen MMcfd	Coke tonne/ day	Sulfur tonne/ day	Asphalt (incl. road oil) b/d
	Crude	Vacuum	Fluid coking (incl. flexicoking)	Delayed coking	Visbreak- ing	Other	Fresh feed	Recycled feed	Low- pressure	High- pressure	Distillate	Gas oil	Residual	Other	Naphtha/ Reformer feed desulfurization	Gasoline desulfur- ization	Kerosine/ Jet desul- furization	Diesel desulfur- ization	Other distillate desulfur- ization	Resid desulfur- ization	Heavy gas oil desulfur- ization	Other desulfur- ization	Other hydro- treating	Alkylation	Aromatics	C4 feed	C5/C6 feed	C8 feed							
	b/cd																																		
UKRAINE	473,529	162,997	0		12,000	0	0	29,600	0	61,037	0	0	0	7,200	0	13,041	0	0	65,999	0	0	0	0	0	0	1,594	0	9,589	0	500	0.0	340	86	5,811	
UNITED ARAB EMIRATES	1,272,000	73,680	0		0	0	0	19,150	0	50,000	0	31,050	57,000	0	0	69,000	0	108,000	75,000	0	0	0	0	128,987	37,000	0	26,000	0	0	0	53.0	0	41	0	
UNITED KINGDOM	1,156,982	552,380	0		67,860	46,377	88,316	338,984	0	159,456	46,669	36,000	0	0	0	144,983	56,754	0	96,683	175,655	0	61,420	0	193,829	66,672	13,200	41,055	13,158	0	13,099	79.4	2,400	450	22,810	
UNITED STATES	17,362,904	7,768,027	140,100		2,439,532	14,400	131,700	5,039,750	19,000	2,282,671	918,670	762,340	1,197,850	80,300	76,100	3,946,682	2,354,285	1,278,100	3,685,900	460,490	210,150	2,370,353	343,120	733,900	1,085,467	293,410	164,016	584,536	0	212,802	3,738	202,899	34,558	595,654	
URUGUAY	50,000	25,000	0		0	7,000	0	12,000	0	12,000	0	0	0	0	0	12,000	0	5,000	0	0	0	0	0	6,000	0	0	0	0	0	0	0.0	0	0	0	
UZBEKISTAN	160,452	45,671	0		17,667	0	0	0	0	23,487	0	0	0	0	0	23,900	0	0	0	0	0	0	0	6,904	0	0	0	0	0	9,397	0.0	650	0	4,151	
VENEZUELA	1,458,000	585,780	0		87,300	0	57,600	231,800	0	49,500	0	0	0	0	0	63,000	2,700	0	0	0	0	184,500	0	139,500	65,800	2,000	20,700	0	0	12,020	147.8	5,200	1,471	36,000	
VIETNAM	330,534	0	0		0	0	0	62,730	80,000	18,900	0	18,900	0	0	0	18,900	0	0	0	0	105,000	0	0	0	0	0	0	0	0	0	0	0	39	0	
YEMEN	140,000	10,500	0		0	0	0	0	0	14,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	3,000	
ZAMBIA	24,000	2,400	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,550	0	0	0	0	0	0	0.0	0	0	104		
TOTALS:	93,160,485	26,824,499	626,386		5,433,428	2,094,543	979,909	14,798,321	590,788	8,587,085	1,729,336	3,666,312	2,329,411	674,541	1,172,795	11,248,542	3,775,831	3,609,179	10,815,331	1,015,838	2,132,291	4,172,549	997,200	5,908,166	2,106,215	1,295,919	507,519	984,012	272,249	716,815	110,648	310,022	118,701	1,636,886	

OGJ 2022 Worldwide Refining Survey: United States

State	Thermal Processes						Catalytic Cracking –		Catalytic Reforming		Catalytic Hydrocracking				Catalytic Hydrotreating										Isomerization						Lubes	Hydrogen MMcfd	Coke tonne/ day	Sulfur tonne/ day	Asphalt (incl. road oil) b/d
	Crude	Vacuum	Fluid coking (incl. flexicoking)	Delayed coking	Visbreak- ing	Other	Fresh feed	Recycled feed	Low- pressure	High- pressure	Distillate	Gas oil	Residual	Other	Naphtha/ Reformer feed desulfurization	Gasoline desulfur- ization	Kerosine/ Jet desul- furization	Diesel desulfur- ization	Other distillate desulfur- ization	Resid desulfur- ization	Heavy gas oil desulfur- ization	Other desulfur- ization	Other hydro- treating	Alkylation	Aromatics	C4 feed	C5/C6 feed	C8 feed							
																													b/cd						
Alabama	133,570	44,650	0	28,800	0	0	0	0	13,770	19,800	0	16,650	0	0	33,390	0	2,250	16,200	21,600	0	27,000	0	0	0	0	1,035	3,780	0	0	40.0	968	207	13,500		
Alaska	161,575	24,700	0	0	0	0	0	0	12,800	0	0	12,400	0	0	12,400	0	0	10,900	0	0	0	0	0	0	0	0	4,800	0	0	12.2	0	24	9,000		
Arkansas	88,065	46,408	0	0	0	0	18,900	0	13,770	0	0	0	0	0	18,000	7,875	0	31,500	0	0	18,900	12,150	0	4,500	0	0	6,750	0	4,950	13.0	0	142	19,350		
California	1,665,930	948,038	46,800	347,000	4,500	0	552,460	0	188,620	146,450	209,050	204,060	0	0	384,840	196,650	175,460	242,270	87,540	0	487,870	63,180	148,500	172,506	1,350	43,960	120,670	0	35,820	1,171.0	41,181	4,240	65,700		
Colorado	98,000	34,200	0	0	0	0	30,200	0	21,900	0	0	0	0	0	21,900	0	15,000	21,200	0	0	28,000	0	5,000	0	0	0	0	0	0	26.0	0	94	10,500		
Delaware	180,500	96,900	46,500	0	0	0	73,800	0	38,700	0	0	18,900	0	0	0	0	0	0	0	0	0	0	144,000	9,900	13,500	5,400	0	0	0	40.0	1,852	541	0		
Hawaii	144,400	67,450	0	0	9,900	0	0	0	12,150	0	1,800	16,200	0	0	11,700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18.0	0	35	0		
Illinois	1,038,515	452,905	0	195,860	0	0	299,350	0	197,240	31,410	51,500	41,800	0	0	395,230	92,700	60,330	298,440	0	0	0	24,120	8,500	82,690	15,660	0	15,200	0	0	183.0	10,621	2,062	39,590		
Indiana	447,260	274,731	0	91,800	0	0	166,844	0	66,186	0	0	0	0	0	206,720	4,838	41,400	121,187	0	0	172,800	0	0	30,495	0	0	29,541	0	0	37.4	6,000	1,707	26,550		
Kansas	395,134	140,600	0	62,100	0	0	93,600	450	51,750	21,150	0	34,650	0	0	110,250	42,300	18,900	114,480	24,300	0	45,000	0	0	30,150	0	4,770	31,300	0	0	112.0	2,728	646	3,600		
Kentucky	291,000	127,300	0	0	0	13,300	98,800	0	23,300	31,800	0	0	0	0	56,600	0	30,400	77,400	0	0	101,700	0	0	21,400	10,000	0	18,100	0	0	32.0	0	386	33,600		
Louisiana	2,774,097	1,150,635	0	493,300	0	72,800	871,100	3,700	406,790	59,580	50,200	272,990	0	56,100	468,710	561,710	112,460	699,650	39,600	0	186,990	34,600	167,400	146,930	21,510	21,900	83,798	0	33,550	359.0	22,995	4,912	44,319		
Michigan	140,000	86,000	0	36,100	0	0	41,800	0	20,400	0	0	0	0	0	33,700	0	6,700	45,600	0	0	42,300	0	0	8,100	0	0	0	0	0	59.0	2,214	397	30,400		
Minnesota	440,000	269,800	0	74,000	0	4,300	119,700	0	34,000	32,300	59,000	0	0	0	69,970	46,080	48,650	86,200	0	0	144,700	0	0	19,300	0	0	30,900	0	0	188.6	25,560	1,212	56,700		
Mississippi	413,010	330,600	0	93,600	0	0	79,200	0	55,400	36,000	0	107,100	0	0	54,720	0	30,600	33,930	0	0	93,600	63,720	67,000	19,350	14,040	0	0	0	43,200	242.0	31,950	1,138	14,513		
Montana	212,755	119,945	9,000	31,340	0	0	59,550	0	11,250	22,800	6,000	21,600	0	0	30,285	18,450	12,240	39,800	49,500	0	41,500	7,110	0	15,410	0	4,925	1,350	0	0	158.5	2,269	514	39,870		
New Jersey	358,500	152,950	0	0	0	0	130,500	0	0	32,300	0	0	0	0	59,300	58,500	26,190	97,200	0	0	0	0	6,000	16,500	0	4,000	0	0	10,800	41.2	0	290	18,900		
New Mexico	117,800	32,585	0	0	0	0	27,000	0	21,600	0	0	16,200	0	0	37,800	0	13,500	38,700	0	0	16,200	0	0	9,270	0	0	12,600	0	0	38.0	0	203	6,300		
North Dakota	71,000	0	0	0	0	0	26,600	0	0	11,900	0	0	0	0	12,400	15,800	6,700	22,600	0	0	0	0	0	4,800	0	0	0	0	0	0.0	0	15	0		
Ohio	606,350	152,525	0	53,100	0	0	184,170	0	60,100	90,000	40,500	52,020	0	0	127,300	31,500	34,400	76,850	0	0	69,100	0	85,500	27,450	22,950	4,050	16,830	0	0	0.0	2,631	707	24,300		
Oklahoma	530,694	204,735	0	33,600	0	0	131,080	1,800	55,350	44,300	12,600	16,380	0	0	137,810	75,200	16,800	157,000	0	0	50,805	19,440	13,900	30,811	18,900	7,610	27,100	0	9,000	96.1	1,524	544	39,073		
Pennsylvania	281,710	109,000	0	0	0	0	74,500	900	0	62,580	0	22,000	0	0	84,840	46,500	24,500	41,300	28,000	0	0	0	0	18,050	0	0	7,650	0	2,651	0.0	0	196	19,859		
Tennessee	171,000	0	0	0	0	0	63,000	0	32,400	0	23,850	0	0	0	46,800	35,100	0	34,200	0	0	0	0	0	11,430	26,100	0	0	0	0	30.0	0	105	0		
Texas	5,553,274	2,497,520	37,800	794,082	0	18,500	1,650,446	11,700	826,740	199,700	293,800	272,900	80,300	20,000	1,261,077	1,009,552	547,980	1,116,883	181,600	210,150	820,218	112,320	64,700	342,335	144,000	50,580	125,417	0	67,341	600.0	43,295	13,194	55,640		
Utah	206,315	33,155	0	9,000	0	0	65,250	0	0	34,300	0	13,500	0	0	44,990	10,900	2,610	45,970	28,350	0	0	0	6,480	0	20,110	0	2,986	5,400	0	0	0.0	2,250	86	1,620	
Washington	643,900	304,100	0	77,850	0	22,800	135,100	0	103,200	25,650	0	58,500	0	0	185,630	88,030	30,600	171,440	0	0	0	0	23,400	38,490	0	12,800	38,850	0	0	186.3	3,909	733	7,830		
West Virginia	21,850	8,170	0	0	0	0	0	0	3,555	0	0	0	0	0	3,870	0	0	8,100	0	0	5,670	0	0	0	0	0	0	0	5,490	3.0	0	1	630		
Wisconsin	47,500	19,475	0	0	0	0	9,900	0	7,200	0	0	0	0	0	9,900	6,750	6,930	5,850	0	0	0	0	0	1,440	5,400	0	0	0	0	0.0	0	31	7,110		
Wyoming	129,200	38,950	0	18,000	0	0	36,900	450	4,500	16,650	14,040	0	0	0	26,550	5,850	13,500	31,050	0	0	18,000	0	0	4,050	0	0	4,500	0	0	52.0	952	197	7,200		
Total:	17,362,904	7,768,027	140,100	2,439,532	14,400	131,700	5,039,750	19,000	2,282,671	918,670	762,340	1,197,850	80,300	76,100	3,946,682	2,354,285	1,278,100	3,685,900	460,490	210,150	2,370,353	343,120	733,900	1,085,467	293,410	164,016	584,536	0	212,802	3,738.3	202,899	34,558	595,654		