RESTRICTED

ENCLOSURE (B)

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DATA ON THE THERMAL CRACKING OF PURE HYDROCARBONS

obtained from

Professor A. IBUKI

ENCLOSURE (B)

Sample	Decomposition temp. (°C)	Percent of gaseous products	Reaction time (min)	Pressure of vessel** (mm Hg)	Composition of gaseous products (vol%)					
					C_2H_2	C_2H_4	C_nH_m	H_2	C_nH_{2n+2}	n*
Cyclohexane	550	41.9	10	92	4.3	27.5	8.1	13.5	46.5	2.0
	550	43.3	60	110	5.7	15.8	4.2	11.1	63.2	1.7
2,3 dimethyl butane	502	15.6	10	174	1.2	16.4	11.9	4.9	65.6	2.3
	497	41.0	60	162	1.2	25.6	7.2	5.3	60.6	1.9
2,2 dimethyl butane	485	5.1	10	210	0.6	18.1	6.3	8.3	66.8	3.5
	484	27.0	60	210	1.4	29.7	4.8	6.7	57.4	3.0
n-hexane	443	2.5	10	120	1.9	30.5	12.9	1.4	53.3	1.9
	445	16.7	60	120	2.6	43.2	7.0	2.0	45.2	2.3
2 methyl pentane	460	13.5	60	140	1.5	32.1	9.2	3.8	53.4	2.4
2 ethyl pentane	452	4.9	10	54	1.0	23.9	10.4	7.6	57.1	1.4
	448	18.7	60	50	0.4	31.2	5.0	5.2	58.2	1.4

* n = Average number of carbon atoms in saturated hydrocarbons.
** Just before decomposition.

ENCLOSURE (B)

Sample	Decomposition temp. (°C)	Percent of gaseous products	Reaction time (min)	Pressure of vessel** (cm Hg)	Composition of gaseous products (vol %)						
					C_2H_2	C_2H_4	C_nH_m	CO	H_2	C_nH_{2n+2}	n*
Cyclopentane	566	18.5	10	204	5.2	51.5	12.2		14.0	17.1	2.3
	560	45.6	30	225	2.8	42.8	2.3		15.6	36.5	2.0
	565	24	60	215	1.7	33.3	8.3		15.4	41.4	1.9
Cyclopentene	500	7.5	10	205	15.2	32.7	1.6		41.3	9.2	1.7
	506	11.5	30	203	10.1	27.8	3.3		43.6	15.2	1.5
	507	12.0	60	235	5.0	24.1	13.5		43.6	23.8	1.4
Cyclopentanol	482	1.3	10	21	8.9	36.6	4.5	3.1	39.7	7.2	1.8
	490	6.9	30	20	15.7	35.7	5.6	6.4	28.4	8.5	1.7
	507	12.0	60	20	10.7	30.2	5.1	8.0	25.5	19.0	1.3
Cyclopentanone	530	11.9	10	19	6.4	41.6	8.5	25.1	9.4	9.0	1.9
	530	42.2	30	19	1.6	26.4	5.5	37.1	10.5	18.9	1.7
	540	47.0	60	20	2.0	19.3	4.3	35.3	14.8	24.6	1.8
Cyclohexane	550	41.9	10	92	4.3	27.5	8.1		13.5	46.5	2.0
	550	43.3	60	110	5.7	15.8	4.2		11.1	63.2	1.7
Cyclohexene	496	5.9	10	55	16.4	61.4	0		7.7	14.5	1.4
	499	13.6	60	54	8.4	39.0	7.5		14.7	30.4	1.4

* n - Average number of carbon atoms in saturated hydrocarbons.
** Just before decomposition.

Sample	Decomposition temp. (°C)	Percent of gaseous products	Reaction time (min)	Pressure of vessel** (mm Hg)	Composition of gaseous products (vol %)						
					C_2H_2	C_2H_4	C_nH_m	CO	H_2	C_nH_{2n+2}	n*
Cyclohexanol	501	4.0	16	3	0.8	41.6	5.4	9.7	26.5	16.5	1.6
	503	30.0	60	3	4.0	37.2	4.7	15.3	13.6	25.2	1.4
Cyclohexene	560	32.2	10	13	1.4	57.0	1.0	26.0	7.1	7.5	1.4
	556	52.0	60	15	1.6	24.2	2.3	29.4	6.3	36.2	1.4
Tertiary Butyl Benzene	498	2.8	10	8	1.4	27.6	6.4		17.0	47.6	1.0
	497	10.0	60	9	0.9	20.5	4.6		11.9	62.1	1.2
	500	23	60 (790°)	9	0.9	6.7	6.7		27.7	64.7	1.0
Isopropyl Benzene	506	2.3	10	11	1.5	11.7	3.4		38.7	44.7	1.0
	507	6.4	60	15	2.3	11.3	3.8		26.7	55.9	1.0
Ethyl Benzene	535	1	10	20	2.1	18.8	5.5		43.7	29.9	1.0
	535	3	60	14	1.1	11.2	5.0		38.2	44.5	1.0
Toluene	600 720	6	10	31	1.5	3.0	2.6		31.2	61.7	1.0
	600 720	12	60 (740°)	33	2.7	2.6	2.0		38.7	54.0	1.0
	600 720	1	60 (635°)	37	2.3	17.6	5.9		31.4	42.8	1.0
Benzene	750	1	60	90		2.7	1.0		96.3		

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