

第二十一圖 第二十圖と同一なるも、攝氏九六〇度に於て五分間加熱したるもの。(三三〇倍)

第二十二圖 第二十一圖と同一なるも、攝氏九六〇度に於て一五分間加熱せるもの。(三三〇倍)

第二十三圖 第二十二圖と同一なるも、攝氏八〇〇度に於て一時間加熱したるもの。(三三〇倍)

◎サー、ロバート、ハッドフィールド氏工業用參考表

添附左記四表はサー、ロバート、ハッドフィールド氏が英國瓦斯工業協會に於て發表せし論文の附表にして本會々員野田鶴雄氏に送り越せしものなるが參考となる處多大なるべきを以てこゝに掲載することゝせり。

一、工業用溫度表

二、石炭一〇〇噸よりの生産物表

三、硬度と抗壓力、抗張力の關係表

四、硬度と抗壓力、抗張力關係曲線圖

TEMPERATURE CHART

On the Centigrade Scale showing the principal melting and freezing points, also other important Metallurgical and Industrial Temperatures based upon the latest available data.

NOTE
ON THIS SIDE ARE SHOWN
"INDUSTRIAL" TEMPERATURE
(1) MELTING POINTS
(2) REFRACTORY MATERIALS.
(3) ELEMENTS.
(4) BOILING POINTS.



DEGREES CENTIGRADE

ELECTRIC { UNDER PRESSURE 3600 }
THERMIT MOULD 2500 }
ATTAINABLE IN OXYACETYLENE FLAME 2400 }
HIGHEST ATTAINED TERRESTRIAL TEMPERATURE }
ARC

ATTAINABLE IN OXY-HYDROGEN FLAME 2000
ATTAINABLE IN PETROL BLOW LAMP FLAME 1600
ATTAINABLE IN FLUID STEEL FROM FURNACES 1500
ATTAINABLE IN MEKER BURNER FLAME 1500
ATTAINABLE IN BUNSEN BURNER FLAME 1350
BLAST FURNACE

2180	CHROMITE	2180	CHROMITE
2050	MAGNESIA BRICK	2050	MAGNESIA BRICK
2010	CHROME BRICK	2010	CHROME BRICK
1900	PURE ALUMINA	1900	PURE ALUMINA
1820	TITANIUM	1820	TITANIUM
1800	BAUXITE	1800	BAUXITE
1795	BEST FIRE-BRICKS	1795	BEST FIRE-BRICKS
1785	IRON (PURE) B.P.	1785	IRON (PURE) B.P.
1750	IRON & MAGNESIA	1750	IRON & MAGNESIA
1730	PURE SILICA	1730	PURE SILICA
1700	VARADOLITE	1700	VARADOLITE
1665	SILICA BRICK	1665	SILICA BRICK
1550	SILICA SOFTENS: INFERIOR FIRE BRICKS MELT	1550	SILICA SOFTENS: INFERIOR FIRE BRICKS MELT
1500	CORUNDUM	1500	CORUNDUM
1490	COBALT	1490	COBALT
1475	STEEL 5% C	1475	STEEL 5% C
1452	STEEL 1.0% C	1452	STEEL 1.0% C
1420	SILICON 1.0% C	1420	SILICON 1.0% C
1390	INFERIOR FIRE BRICKS SOFTEN	1390	INFERIOR FIRE BRICKS SOFTEN
1350	STEEL 2% C	1350	STEEL 2% C
1320	ARMED STEEL	1320	ARMED STEEL
1290	PERM. NICKEL	1290	PERM. NICKEL
1230	PERM. NICKEL	1230	PERM. NICKEL
1215	PERM. MANGANESE (80% M)	1215	PERM. MANGANESE (80% M)
1100	CAST IRON (AVERAGE)	1100	CAST IRON (AVERAGE)
1083	COPPER	1083	COPPER
961	SILVER	961	SILVER
658	ALUMINIUM	658	ALUMINIUM
419	ZINC	419	ZINC
327	LEAD	327	LEAD
232	TIN	232	TIN
100	BOILING WATER	100	BOILING WATER
-8	MELTING ICE	-8	MELTING ICE
-182	LIQUID AIR B.P.	-182	LIQUID AIR B.P.
-273	ZERO	-273	ZERO

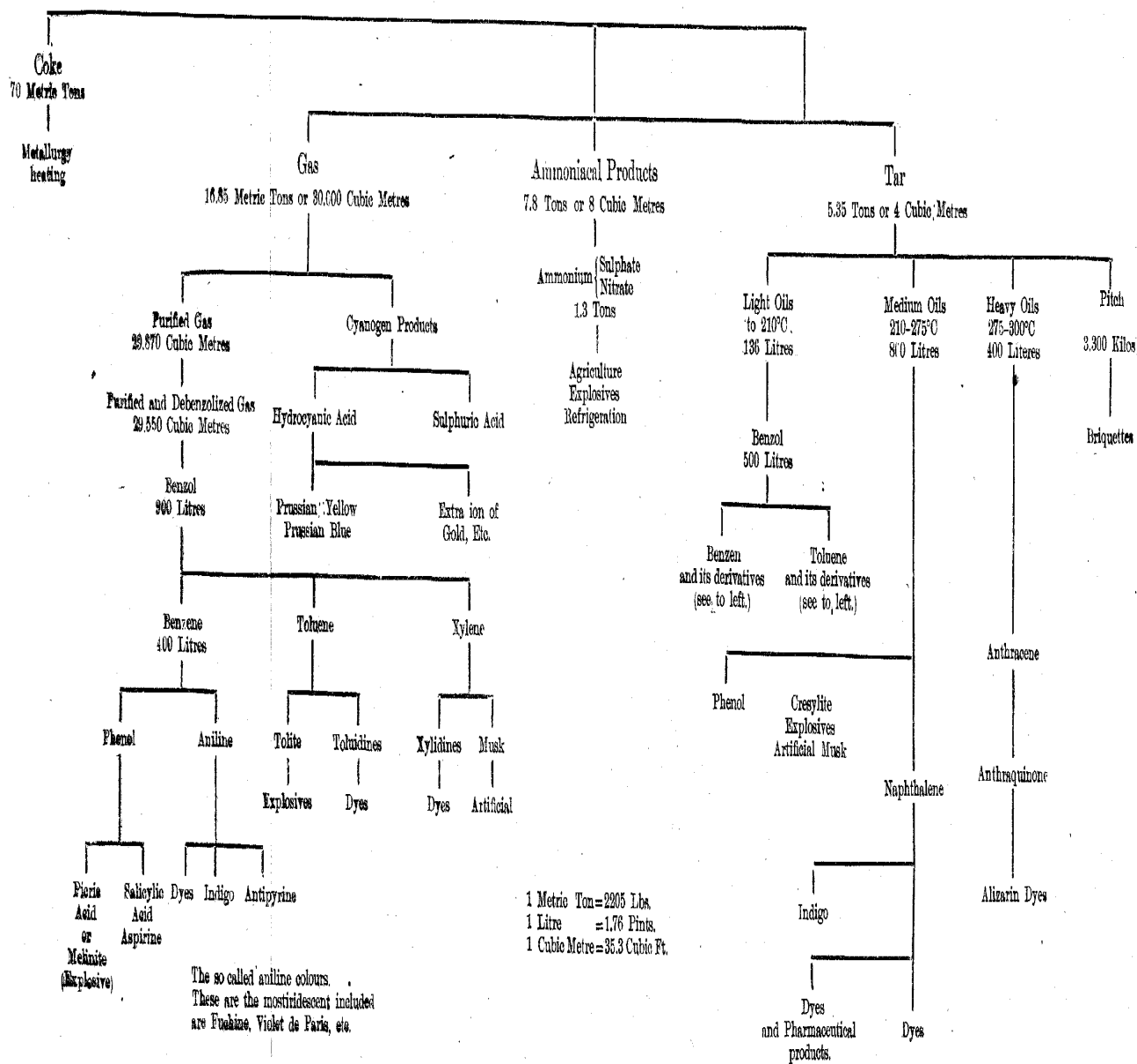
TEMPER COLOURS { BLACKISH BLUE 2150
LIGHT BLUE 2050
PURPLISH BROWN 1800
BROWN 1700
PALE YELLOW 1600
RED HEAT JUST VISIBLE 525
FULL YELLOW HEAT 1100
LIGHT RED HEAT 1000
CRITICAL POINT OF STEEL HEATING 750
OF 0.2 TO 1.2% CARBON COOLING 695
FULL CHERRY RED HEAT 600
DULL RED HEAT 525

LOWEST NATURAL TEMPERATURE - 68
YET RECORDED

LOWEST TEMPERATURE YET REACHED - 272
(KAMMERLINCH ABSOLUTE - 273)

二、石炭—〇〇噸よりの生産物表

100 Metric Tons of Coal give about



三、 硬度と抗壓力抗張力の關係表

COMPARISON OF BRINELL BALL AND SCLEROSCOPE HARDNESS NUMBERS WITH COMPRESSION STRENGTH ALSO YIELD POINT AND TENACITY OF STEEL.

This table represents the average of a large number of tests on all types of steel, and is intended as an approximate guide. Individual results vary considerably from the average.

Zones of Hardness E to A	Approximate Scleroscope Hardness Number.	Brinell Ball Hardness Number.	Tensile Strength.				On specimens .864" diameter and .70" in height.			
			Yield Point.		Maximum Stress.		Elastic Limit and Compression.		Compression %	
			Tons per sq. in.	Kilograms per sq. m/m.	Tons per sq. in.	Kilograms per sq. m/m.	Tons per sq. in.	Kilograms per sq. m/m.	(100 tons per sq. in.) (1.60 Kilograms per sq. m/m.)	
F		150	26	41	41	65	17	27	49.0	
		175	32	50	46	72	19	30	40.0	
		200	38	60	51	80	21	33	35.0	
		225	41	69	56	88	23	36	31.0	
E		250	50	79	61	96	26	41	27.0	
		275	56	88	66	104	30	47	23.0	
		300	61	96	71	112	31	54	19.0	
		325	67	105	76	120	38	60	15.0	
		350	73	115	81	128	43	68	11.3	
D		375	79	124	86	135	49	77	8.0	
		400	84	133	91	143	55	87	5.6	
		425	90	143	96	151	61	96	3.8	
		450	96	151	101	159	67	105	2.4	
C		475	102	161	106	167	74	116	1.3	
		500	107	169	111	175	81	127	0.6	
		525	113	178	116	183	87	137	0.3	
B		550			121	190	94	148	0.21	
		575			126	198	101	159	0.20	
		600			131	206	108	170	0.18	
		625			136	214	115	181	0.16	
		650			141	222	123	192	0.14	
A		675			146	230	129	203	0.13	
		700			151	238	136	214	0.12	
		725			156	246	144	227	0.11	
		750			161	254	151	238	0.09	
		775			166	261	159	250	0.08	
		800			171	269	166	261	0.07	
A 2										

The printed capital letters in the zone column refer to special sections of zones of hardness as follows:—

Zone	Brinell Ball Hardness Number. From to	Scleroscope Hardness Number. From to	Yield Point. Tons per sq. inch. to	Maximum Stress. Tons per sq. inch. to
F	150 200	34 34	32 32	36 46
E	200 300	50 60	33 56	46 66
D	300 400	64 64	56 79	66 86
C	400 500	78 78	79 102	86 106
B	500 600	83 85	102 102	106 126
A	600 700	101 101	102 102	126 126

Grades extending hardness comparisons here.

四、硬度と抗壓力抗張力關係曲線圖

DIAGRAM SHOWING COMPARISON OF BRINELL BALL AND SCLEROSCOPE HARDNESS NUMBERS WITH COMPRESSION STRENGTH ALSO YIELD POINT AND TENACITY OF STEEL VARYING FROM THE SOFTEST TO THE HARDEST "SUPER" HARDNESS TYPES

(This Diagram has been Prepared from the Data of the Accompanying Table)

