China Steel Chemical Corp.

November, 2019

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The Brief Introduction to CSCC

Chronology of Major Events

1.CSCC established in February 1989.

2.Plants completed during 1991~1993.

3.CSCC IPO listed in Taiwan in November, 1998

4.CSCC was awarded “Industrial Excellence Award “ and “National Outstanding SMES Award” in 2000 and 2001.

5.CSCC achieved OHSAS 18001 certification during 2001~2008.

6.CSCC achieved CNLA in April, 2002. And granted authentication in April 2005 and November, 2008.

7.Refined Naphthalene Unit expansion completed in April 2009.

8. The capacity 1,400 MT/YR of Green Mesophase Powder Plant completed in January 2010.

9.The Light Oil Distillation plant phase 2 completed in April 2010.

10.The line G5/G6 of Green Mesophase Powder Plant reaching capacity to 2,600 MT/YR completed during the third quarter 2011.

11.The line G1N/G2N of Green Mesophase Powder Plant reaching capacity to 5,000 MT/YR completed by the end of 2012.

The Brief Introduction to CSCC

The Structure of Shareholder

unit：per thousand stocks

Major shareholder	Shares	Percentages
China Steel Corp.	68,787	29.04%
HSBC Hosts Matthews Asia Dividend Fund Investment Account	15,589	6.58%
International CSRC Investment Holdings Co., Ltd.	11,759	4.96%
Fubon Life Insurance Co., Ltd.	12,159	5.13%
Ever Wealthy International Corp.	4,754	2.10%

As of：Apr., 2019

The Brief Introduction to CSCC

Table of academic degree in CSCC's employees

Academic Degree	No.	Percentages
Ph.D.	8	3%
Master's Degree	85	28%
Bachelor's Degree	143	47%
Junior College and Senior High School	67	22%
Total	303	100%

As of：Oct., 2019

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Unit: NT$ thousands

2017	01	02	03	04	05	06	07	08	09	10	11	12	Total
Revenue	582,273	488,621	616,352	534,801	496,725	482,917	519,021	502,603	541,798	504,040	368,596	604,500	6,242,267
Operating Income	129,849	112,738	88,167	91,629	77,181	87,196	103,744	113,229	106,290	95,515	62,014	181,712	1,249,264
Net income before tax	109,023	96,171	120,944	97,828	85,081	120,257	113,479	113,753	125,429	115,713	61,404	206,084	1,365,166
Oil Price	54	54	51	52	50	46	48	50	53	55	60	61	53
2018	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**Total**
Revenue	708,454	583,994	720,069	675,634	678,831	664,972	743,662	779,066	793,703	754,445	768,359	688,930	8,559,970
Operating Income	156,645	111,915	152,960	139,986	145,933	133,353	169,181	174,206	157,365	135,629	156,050	143,032	1,776,255
Net income before tax	149,252	133,860	135,791	146,578	169,513	150,865	163,175	184,811	192,252	160,260	147,542	151,768	1,885,667
Oil Price	66	63	64	69	74	72	73	71	75	77	62	53	67
2019	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**Total**
Revenue	689,967	584,475	744,685	631,257	648,487	586,009	758,858	712,468	687,702	607,352			6,651,260
Operating Income	154,816	117,582	157,996	137,680	122,028	106,951	154,404	146,911	145,296	116,123			1,359,787
Net income before tax	167,368	126,085	184,027	147,816	141,191	117,374	164,915	156,459	180,478	106,055			1,491,768
Oil Price	57	61	64	69	67	60	61	57	60	57			61

* The announcement is based on self-reported consolidated net income before tax.

The Brief Introduction to CSCC

Unit: NT$ millions

	2014	2015	2016	2017	2018	*2019 /01~10
Revenue	8,904	5,737	5,143	6,242	8,560	6,651
Net income after tax	2,189	1,239	1,038	1,207	1,516	Before tax 1,492
EPS(NT$)	9.50	5.37	4.45	5.00	6.50	-

* The announcement is based on self-reported consolidated net income before tax.

EPS	2016				2017				2018				2019		
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
	1.02	1.04	1.10	1.29	1.14	1.16	1.31	1.39	1.40	1.63	1.92	1.55	1.68	1.45	1.78

The Brief Introduction to CSCC

unit：metric tons

Period / Input	2013	2014	2015	2016	2017	2018	2019/ 1~10
Coal Tar	264,578	266,814	257,506	258,214	253,172	257,637	222,335
Light Oil	93,609	100,930	100,220	94,834	100,590	117,102	107,092

Dividend Payout

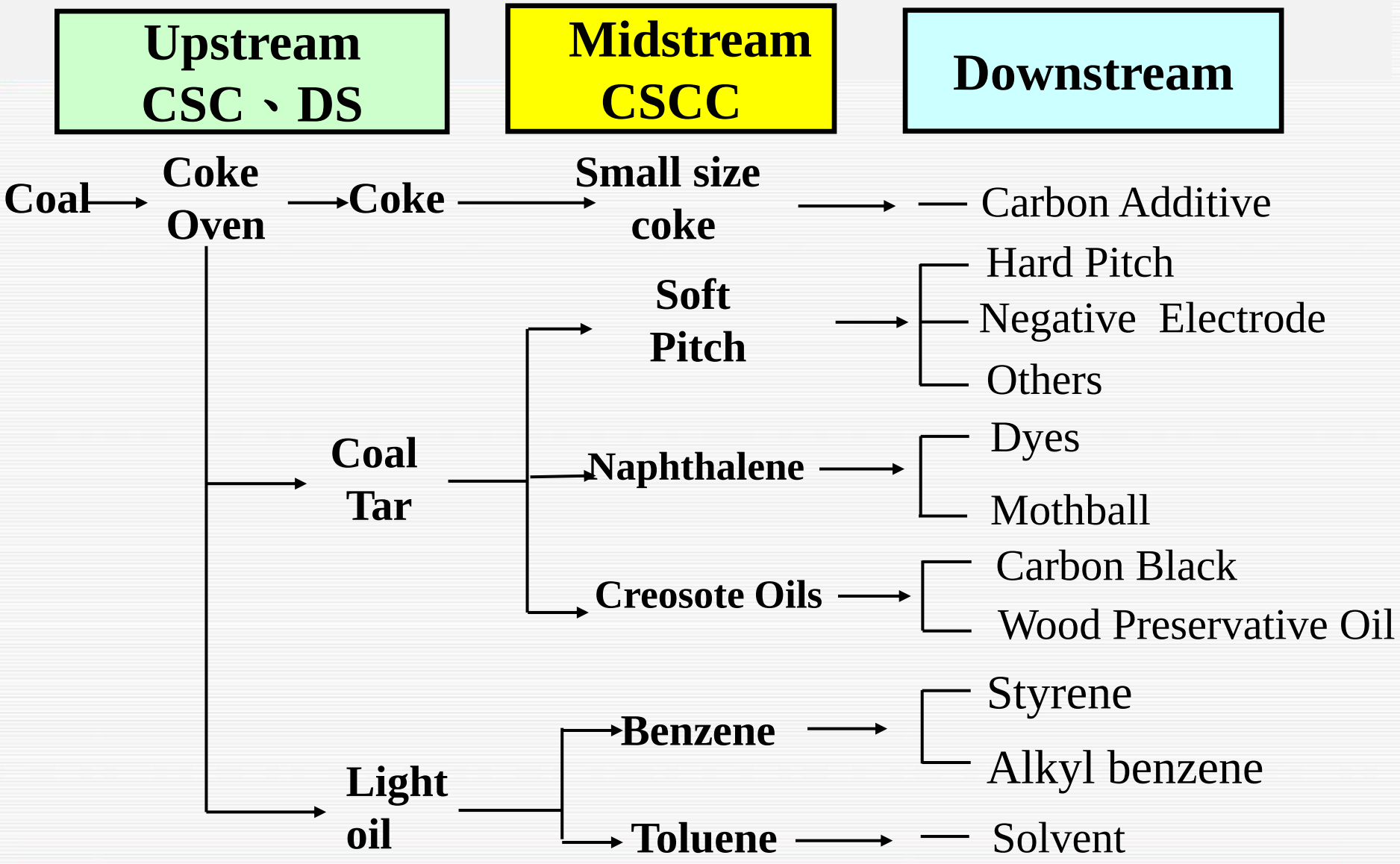
	2011	2012	2013	2014	2015	2016	2017	2018
EPS	9.7	8.5	9.6	9.5	5.37	4.45	5.0	6.5
Cash Div.	8.0	7.4	8.3	8.3	4.5	4.5	4.6	5.3
Stock Div.	0	0	0	0	0	0	0	0

Sales Revenue breakdown by products

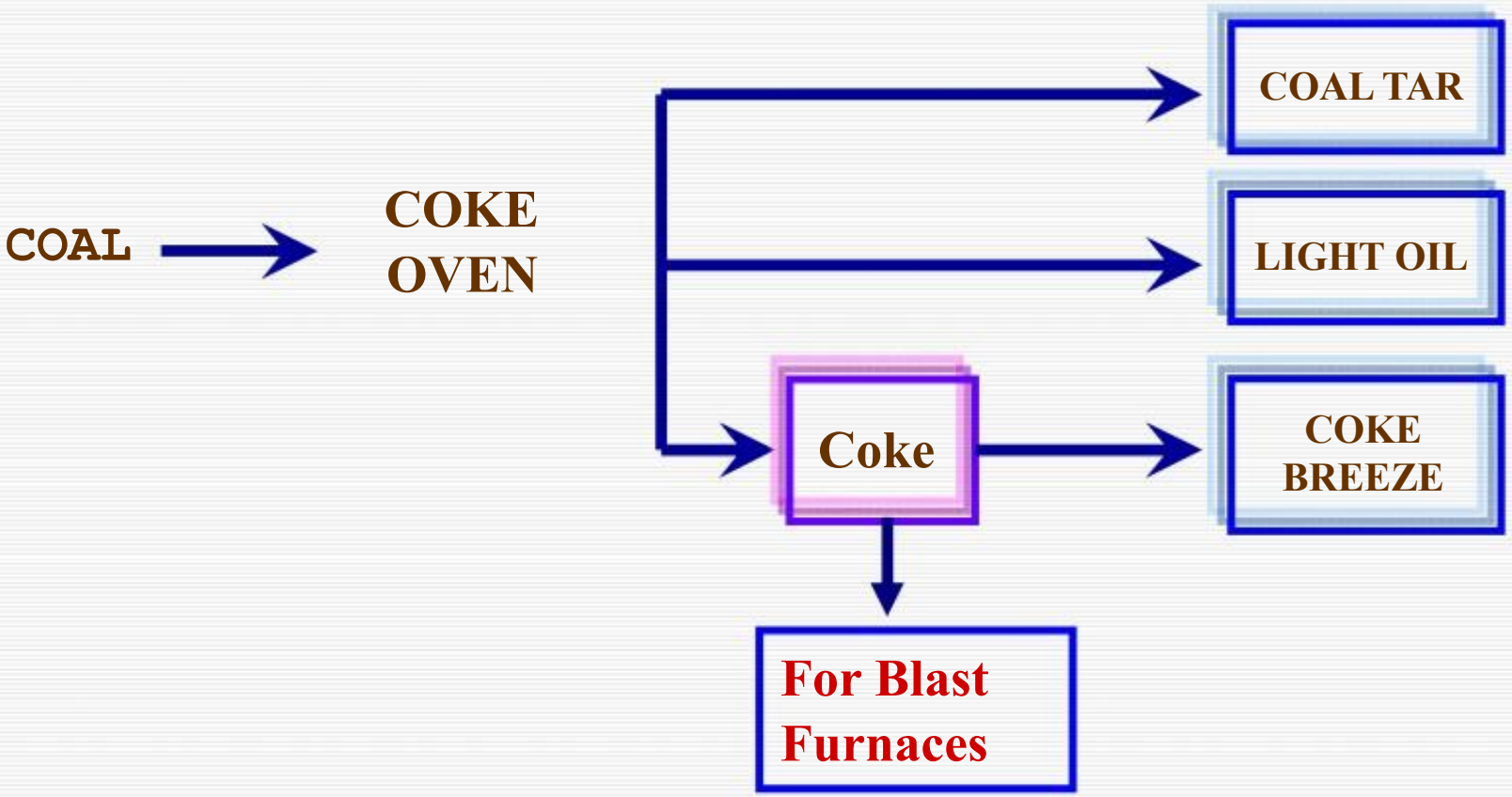
	2018	2018/1Q	2018/2Q	2018/3Q	2018/4Q	2019/1Q	2019/2Q	2019/3Q
Trading	9%	6%	8%	11%	11%	11%	14%	9%
Light Oil	29%	33%	28%	29%	27%	26%	29%	30%
Benzene	25%	28%	24%	24%	23%	21%	24%	25%
Coal Tar	44%	44%	46%	42%	47%	50%	44%	48%
Creosote Oils	21%	21%	21%	20%	23%	28%	29%	25%
Soft Pitch	15%	15%	16%	14%	16%	13%	6%	17%
Naphthalene	7%	7%	7%	7%	6%	7%	7%	5%
Carbon Material	8%	6%	7%	9%	8%	6%	6%	6%
Coke Breeze	8%	11%	11%	6%	6%	6%	8%	6%

Calculations are based on consolidated sales.

The Relating Product Map of Coal Chemical Industries

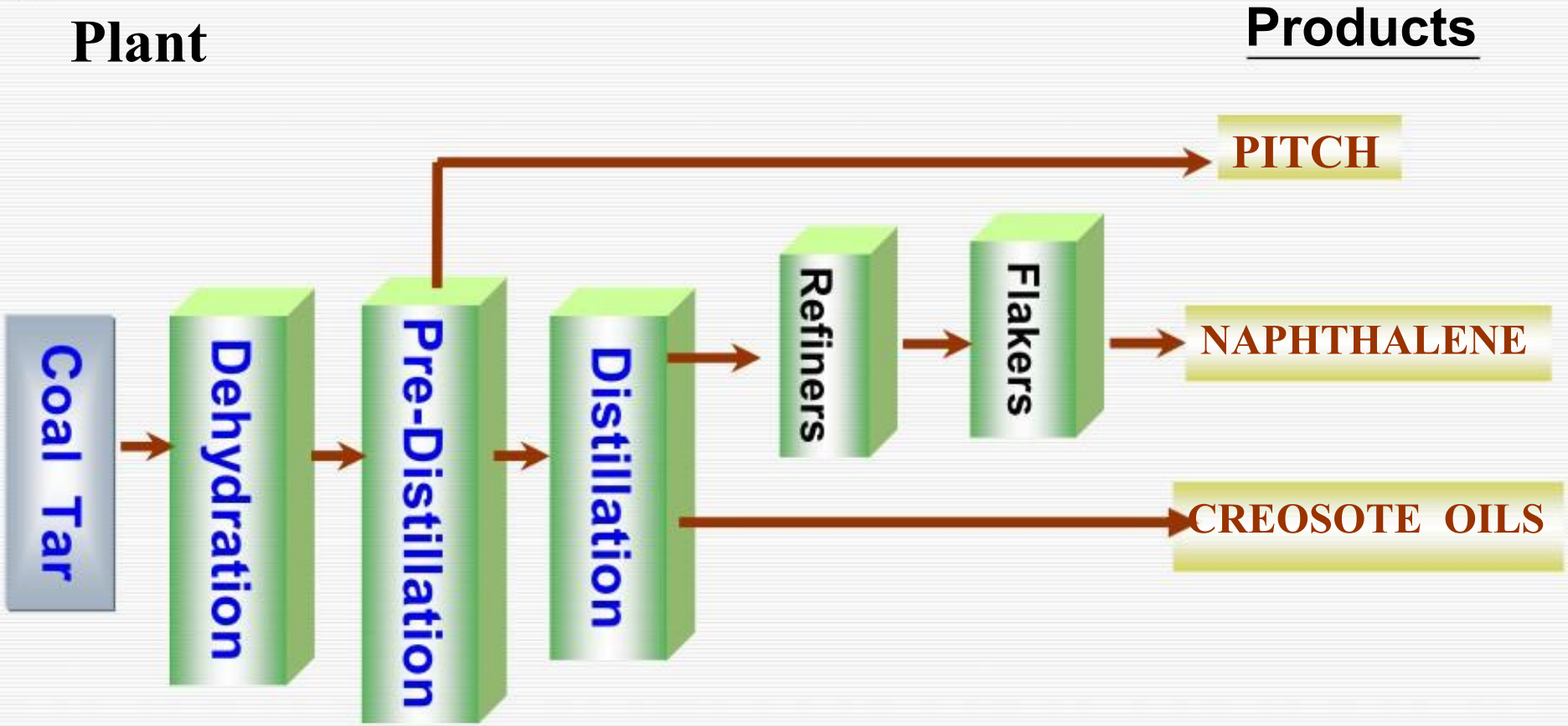


The Relating Product Map of Coal Chemical Industries



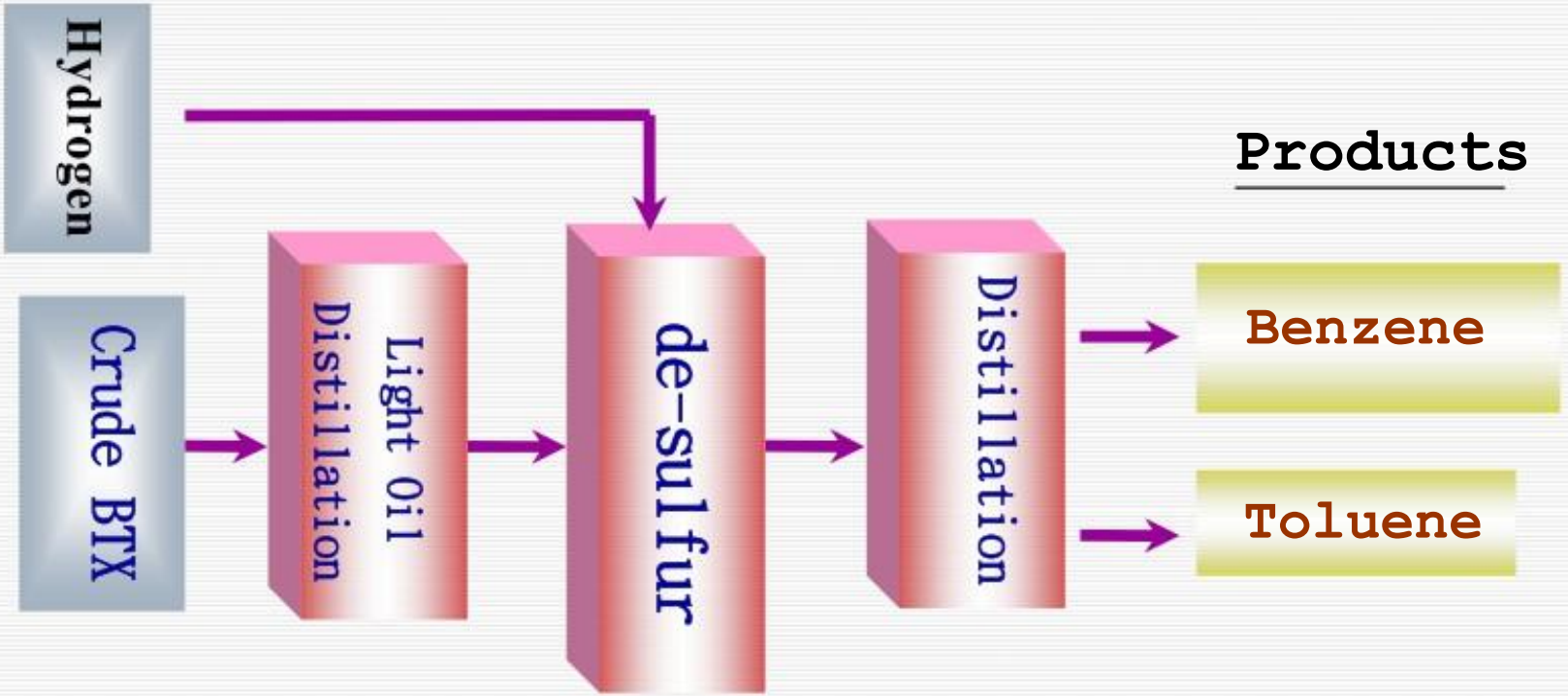
The Relating Product Map of Coal Chemical Industries

- **The Process of the Coal Tar Distillation Plant**



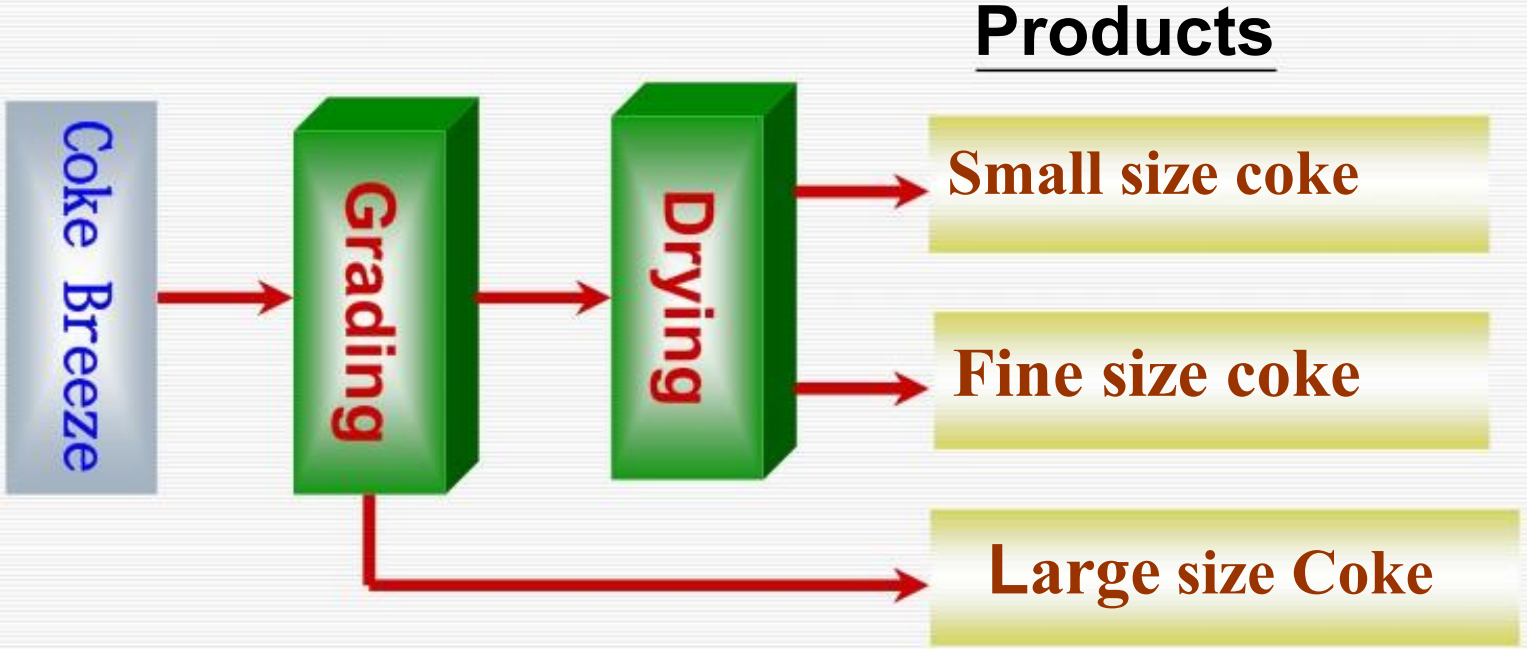
The Relating Product Map of Coal Chemical Industries

The Process of the Light Oil Distillation Plant



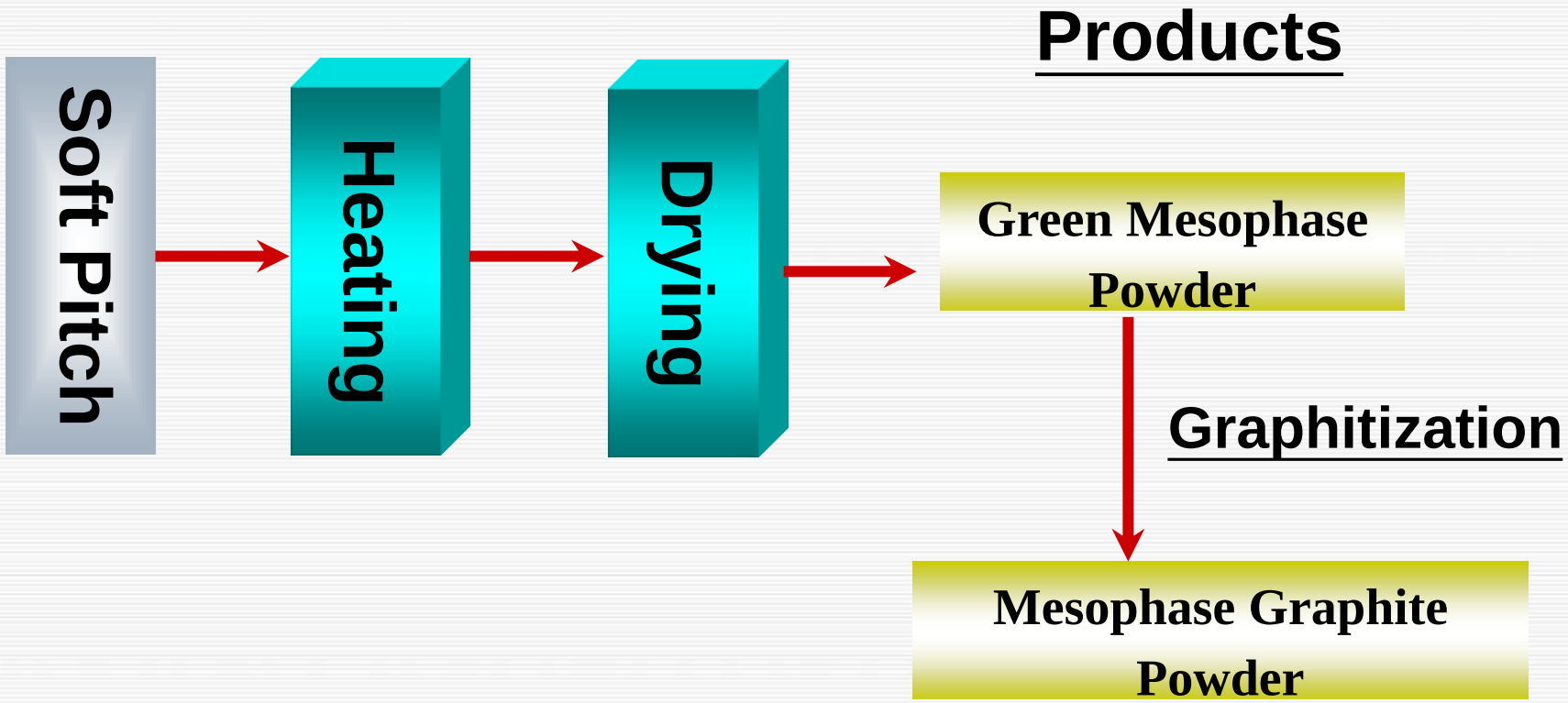
The Relating Product Map of Coal Chemical Industries

- The Process of the Coke Breeze Plant



The Relating Product Map of Coal Chemical Industries

- The Process of the Green Mesophase Powder plant

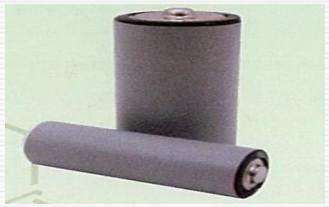


The Industrial Use for CSCC

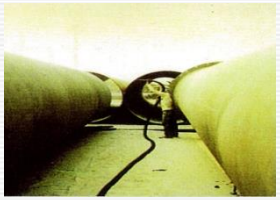
The Appliance of Soft Pitch

Soft Pitch

Primary electrode rod



Water and rust proofing materials



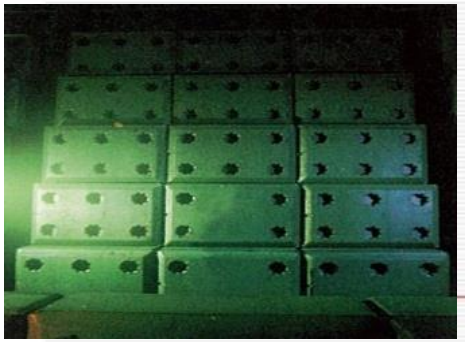
Green Mesophase Powder

Active Carbon for Supercapacitor

Hard Pitch

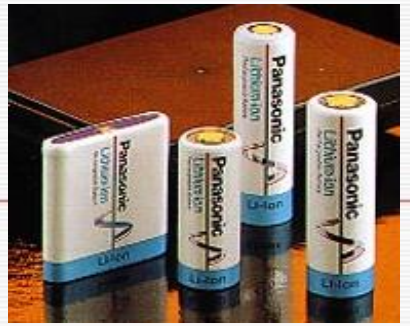
Mesophase Graphite Powder

Electrode binder



Roofing Pitch

Lithium Ion Battery



The Appliance of Naphthalene

Naphthalene

Sulfonated naphthalene formaldehyde condensates

Water-reducing admixture

B-naphthol, Tobias acid, J-acid

Dyestuffs pigment

Mothballs

Phthalic anhydride (PA)

Plasticizer

PEN resin

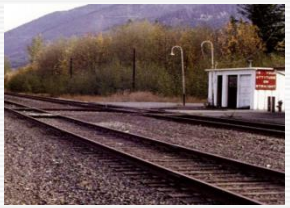
BON-6

The Appliance of Creosote oils

Creosote oils

Carbon black

Wood preservative oil



Wash oil

The Appliance of Benzene

Benzene

Styrene	Phenol	Caprolactam	Alkyl-benzene
External shell for 3C's product and sport materials	Epoxy resin paint	Nylon 6	detergents

New Products Development

- High Soft Point Pitch (HSP):utilized as wrapping materials to cover carbon for Li-ion Batteries anode or as binder material for fireproofing material.

- High Soft Point Pitch is a special pitch which possesses a soft point higher than 260℃and have high fixed carbon ratio (ca. 80-85%). It is also utilized as carbon fiber precursor, because the production procedure of HSP is similar to the one of carbon fiber procedure.

- Nowadays, the pre-launch sample is provided to customers for testing as wrapping material for Li-ion batteries anode and fireproofing material. Mass production process design had been completed and evaluation of mass product line will be made after market expands.

New Products Development

- The quality of AC is great as Japan leading brand. The AC has already been sold worldwide.
- Due to the expansion of Li-ion batteries anode material, establishing graphitizing factory is planning. Studying abroad techniques of graphitization, evaluation of inductive graphitizing furnace and mass production plan are progressing.

CSCC's Meso-Graphite

■Application: High Energy & Power density in LIB

Energy Density(Wh/Kg):Low → High

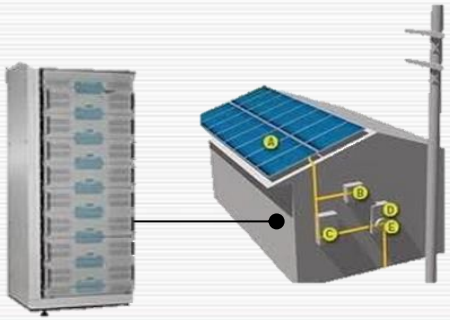
Power Density(W/Kg):Strong ← Low

MG10
MG08
PT/HEV

MG11
FMGP
EV/ESS

MG12
MGP
MG13
Tablets/3C

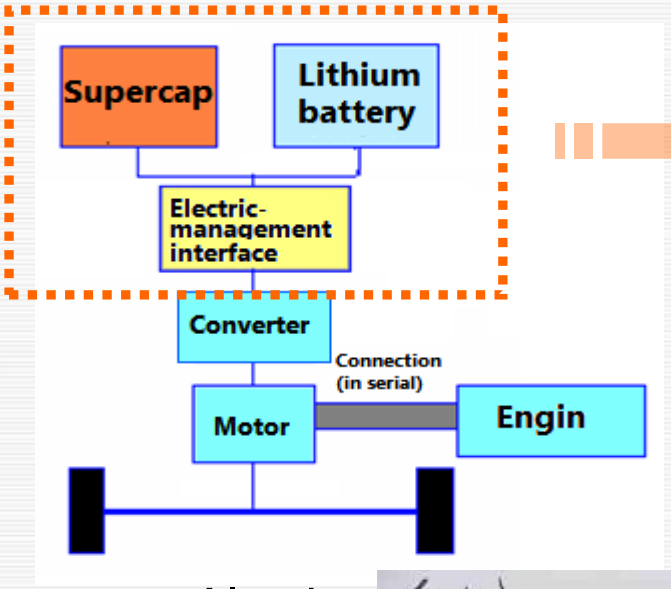


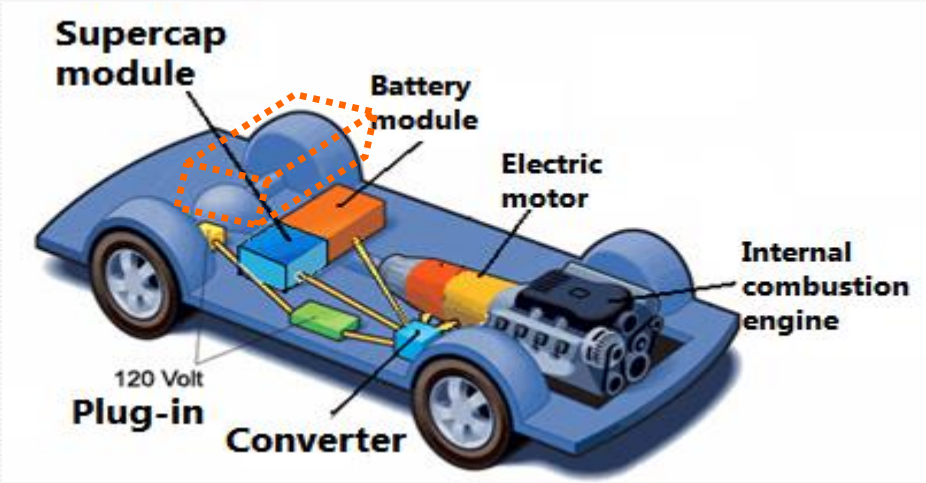




Applications of Supercapacitors

PHEV

(Plug in hybrid electric vehicles)





Also in…

E-Bus

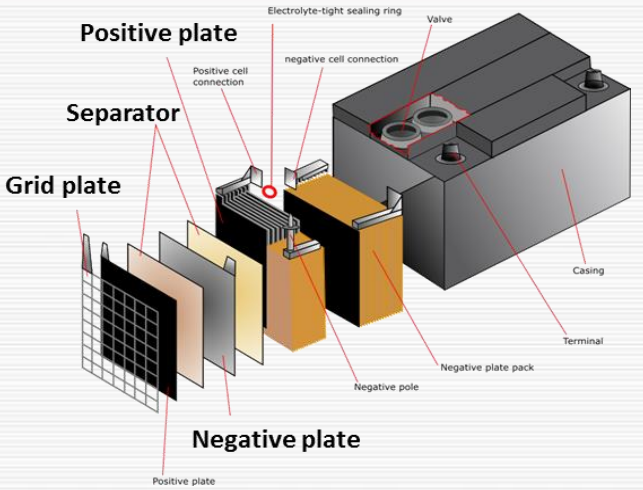
Light Rail Transit

Wind turbine

Introduction of Advanced Lead-Acid Battery

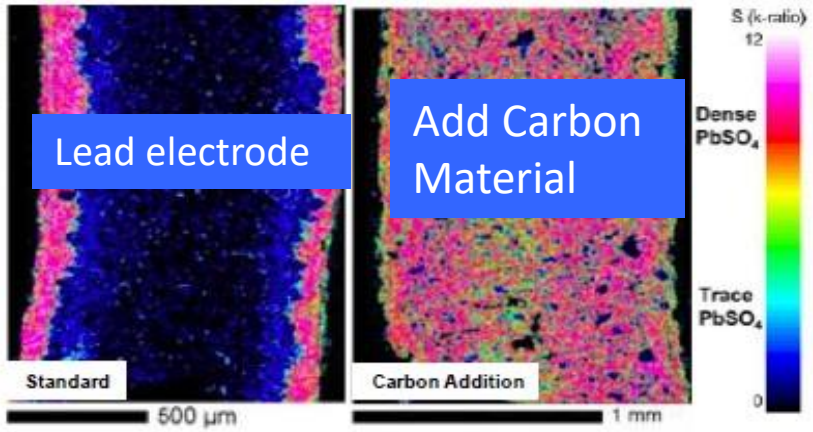
Advanced Lead-Acid Battery

Advantages	Disadvantages
•Lower costs •High battery recycling • High ambient tolerance •Low amount of maintenance •Extending the life of LAB •Large current capability	•Unfriendly environmental materials (Pb, Acid) •Typical charging efficiency only around 70%



Advantages of addition activated carbon into LAB

1. Increasing conductivity
2. Improving the uniformity of Pb/$PbSO_4$
3. Capacitance effect
4. Adsorption of sulfuric acid, suppling of electrolyte in the plate nearly.



Elimination of hard sulfation by carbon additions, allowing more complete usage of the battery (both images are from cells at end of life). Fernandez et al., *2010.*

Source: Pavlov D., Lead-acid Batteries: Science and Technology. *Elsevier,* 2011.

Thank You