China Steel Chemical Corp.

Table of Content

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.

The Brief Introduction to CSCC

Chronology of Major Events

11. Obtained the CNS15506 certification in April 2012, and obtained the CNS15506 recertification from March 2016 to March 2019.

12. Obtained ISO50001 certification in July 2013, and obtained ISO50001 recertification from July 2016 to July 2019.

13. Obtained ISO / TS16949 certification in October 2013; obtained ISO / TS16949 recertification in September 2016; and obtained the IATF 16949:2016 certification in September 2018.

14.Invested in joint venture with Formosa Ha Tinh (Cayman) Limited in January 2016.

15.The line of Green Mesophase Powder Plant reaching capacity to 7,500 MT/YR in June 2019.

16.Mesophase Powder Plant go into operation in 2019.

17. Paid-up capital : NT$ 2.369 billion

The Brief Introduction to CSCC

The Structure of Shareholder

unit：per thousand stocks

Major shareholder	Shares	Percentages
China Steel Corp.	68,787	29.04%
Fubon Life Insurance Co., Ltd.	16,578	7.00%
International CSRC Investment Holdings Co., Ltd.	11,759	4.96%
Cathay Life Insurance Co., Ltd.	6,331	2.67%
Ever Wealthy International Corp.	4,753	2.01%

As of：Aug. , 2021

The Brief Introduction to CSCC

Table of academic degree in CSCC's employees

Academic Degree	No.	Percentages
Ph.D.	9	3%
Master's Degree	81	27%
Bachelor's Degree	142	48%
Junior College and Senior High School	67	22%
Total	299	100%

As of：Aug., 2021

The Brief Introduction to CSCC

Unit: NT$ thousands

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	377,379	513,351	7,541,990
Operating Income	154,816	117,582	157,996	137,680	122,028	106,951	154,404	146,911	145,296	116,123	26,297	56,309	1,442,393
Net income before tax	167,368	126,085	184,027	147,816	141,191	117,374	164,915	156,459	180,478	106,055	31,554	72,004	1,595,326
WTI Oil Price	51	55	58	64	61	55	57	55	57	54	57	60	57
2020	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**Total**
Revenue	554,160	518,292	526,725	332,281	394,598	422,791	335,847	432,718	393,207	452,816	496,347	503,992	5,363,774
Operating Income	101,421	69,825	57,757	33,280	57,748	54,594	51,549	61,693	41,563	82,915	68,602	88,952	769,899
Net income before tax	109,439	73,576	48,645	30,333	69,681	91,722	51,082	81,662	62,518	82,498	74,659	75,204	851,019
WTI Oil Price	58	51	29	16	28	38	41	42	40	39	41	47	39
2021	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**Total**
Revenue	456,534	505,420	706,902	649,410	642,982	659,493	749,190	751,480					5,121,411
Operating Income	66,952	85,242	110,365	109,369	106,509	89,713	149,085	97,468					814,703
Net income before tax	69,173	85,644	130,878	103,629	106,026	130,901	152,580	102,467					881,298
WTI Oil Price	52	59	62	62	65	71	72	68					64

* The announcement of 2021 is based on self-reported consolidated net income before tax.

The Brief Introduction to CSCC

Unit: NT$ millions

	2016	2017	2018	2019	2020	2021/1~8
Revenue	5,143	6,242	8,560	7,542	5,364	5,121*
Net income after tax	1,038	1,208	1,516	1,298	708	881*
EPS(NT$)	4.45	5	6.5	5.57	3.09	-

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

EPS	2017				2018				2019				2020				2021	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
	1.14	1.16	1.31	1.39	1.4	1.63	1.92	1.55	1.68	1.45	1.78	0.66	0.78	0.71	0.7	0.9	1.01	1.25

The Brief Introduction to CSCC

unit：metric tons

Period / Input	2016	2017	2018	2019	2020	2021/1~8
Coal Tar	258,193	253,172	257,637	255,066	260,216	168,166
Light Oil	94,834	100,590	117,102	124,062	116,302	76,420

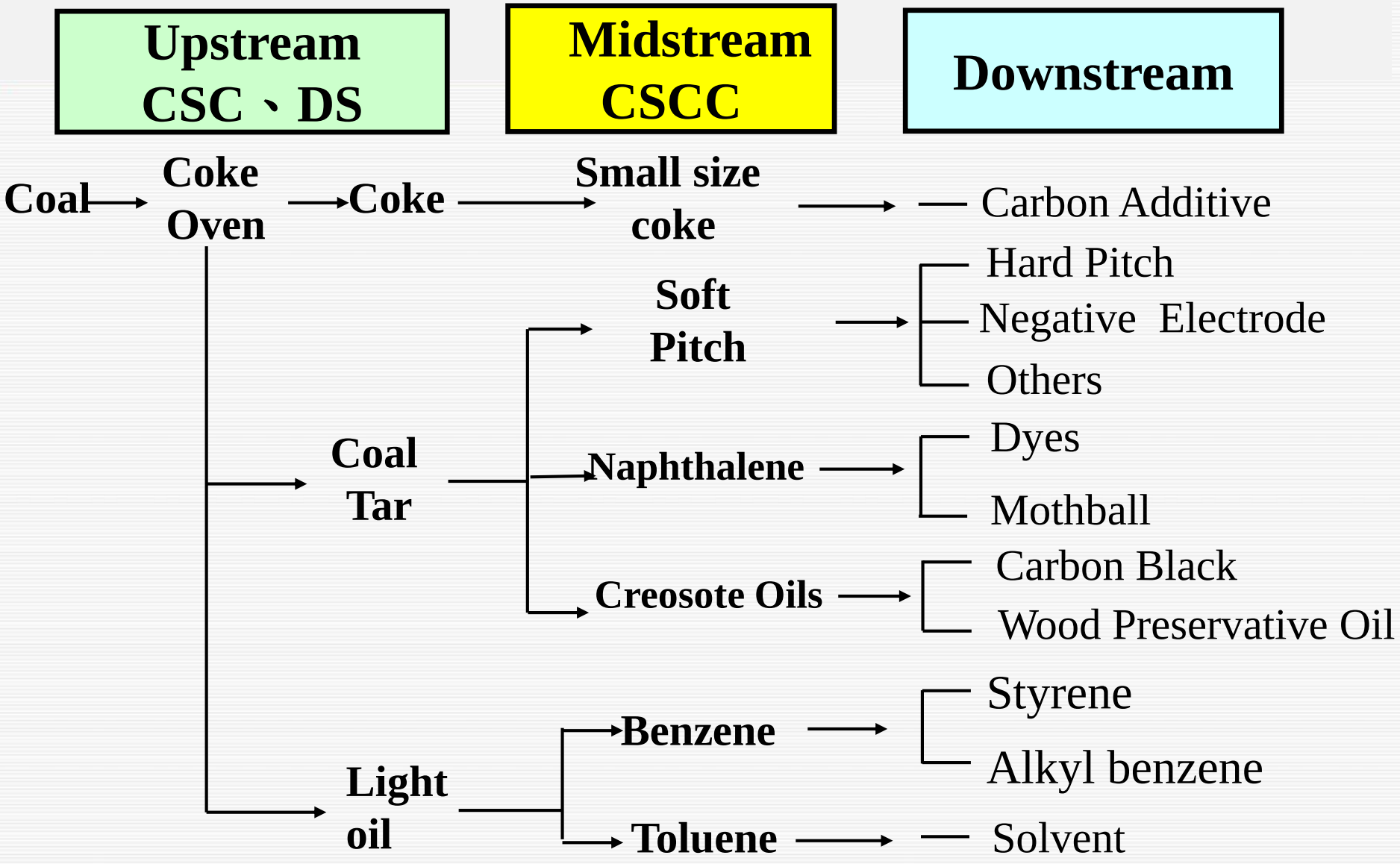
Dividend Payout

	2014	2015	2016	2017	2018	2019	2020
EPS	9.5	5.37	4.45	5.0	6.5	5.57	3.09
Cash Div.	8.3	4.5	4.5	4.6	5.3	5.0	2.8
Stock Div.	0	0	0	0	0	0	0

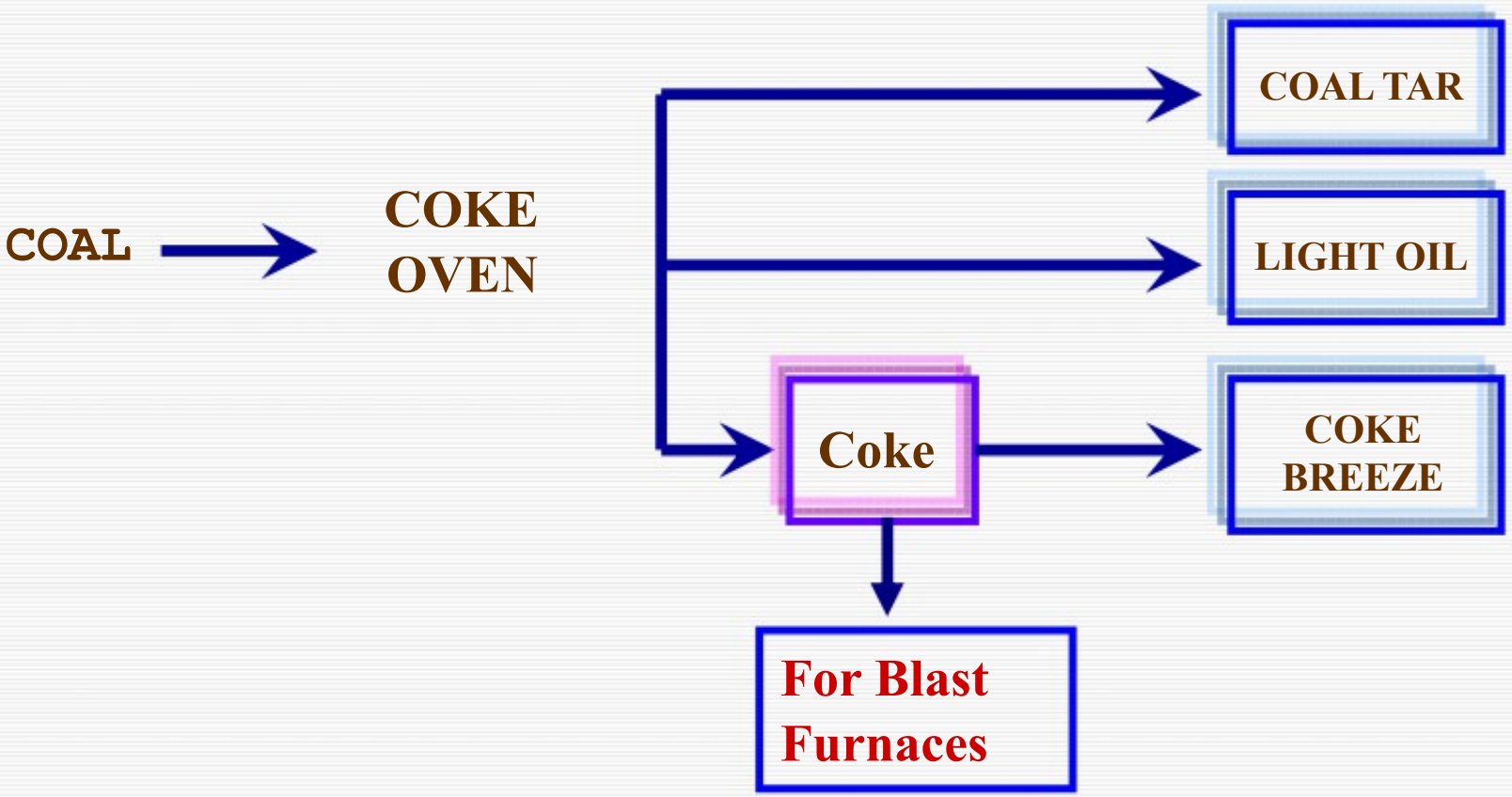
Sales Revenue breakdown by products

	2019	2020/1Q	2020/2Q	2020/3Q	2020/4Q	2020	2021/1Q	2021/2Q
Light Oil	29%	32%	25%	31%	24%	28%	31%	37%
Benzene	24%	28%	20%	25%	20%	24%	26%	31%
Coal Tar	47%	45%	50%	43%	51%	47%	42%	35%
Creosote Oils	26%	26%	27%	26%	27%	26%	25%	22%
Soft Pitch	12%	11%	15%	7%	16%	13%	10%	6%
Naphthalene	7%	6%	7%	9%	6%	7%	6%	5%
Carbon Material	5%	5%	4%	4%	4%	4%	5%	5%
Coke Breeze	7%	7%	10%	10%	9%	9%	9%	9%
Trading	11%	9%	8%	10%	11%	10%	11%	14%

The Relating Product Map of Coal Chemical Industries

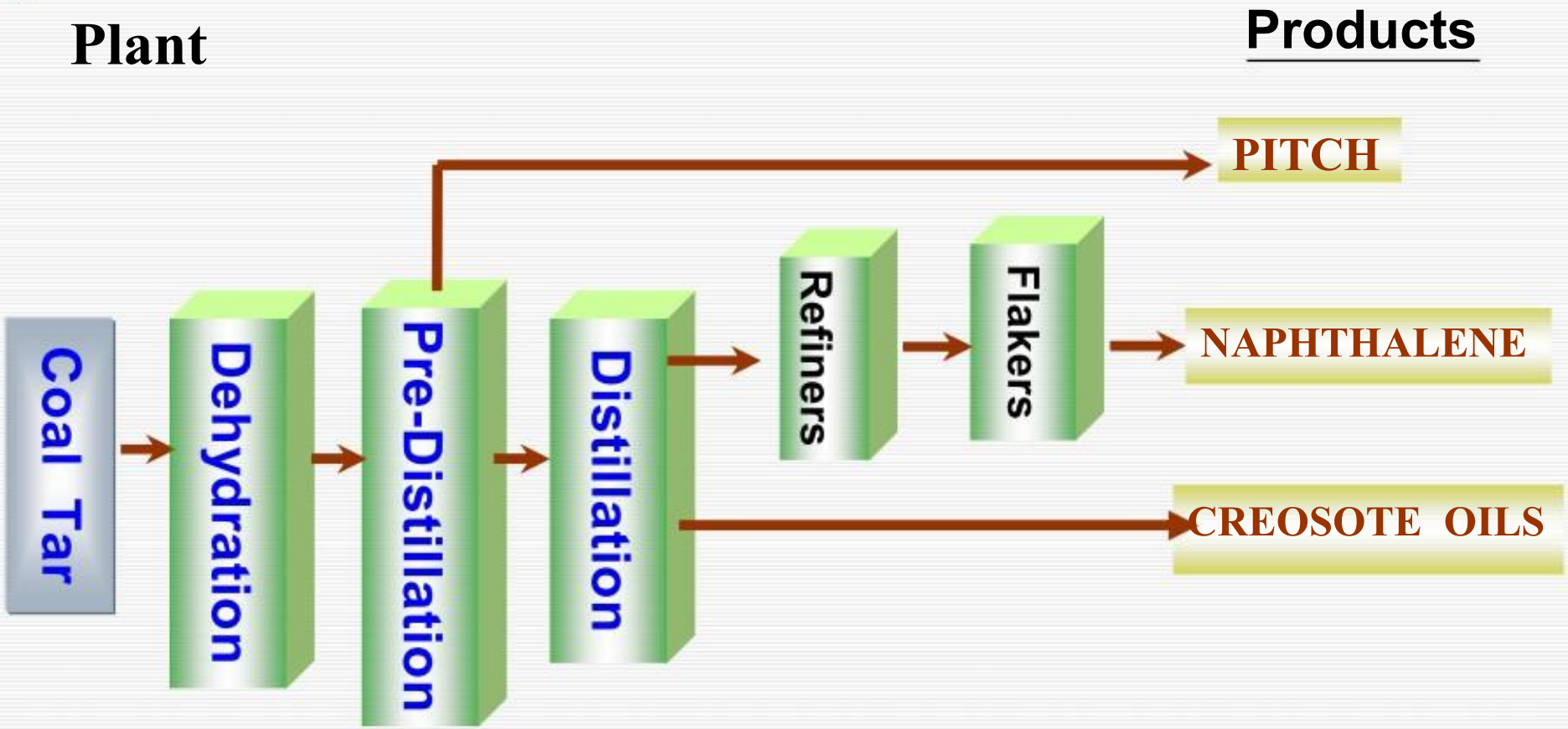


The Relating Product Map of Coal Chemical Industries



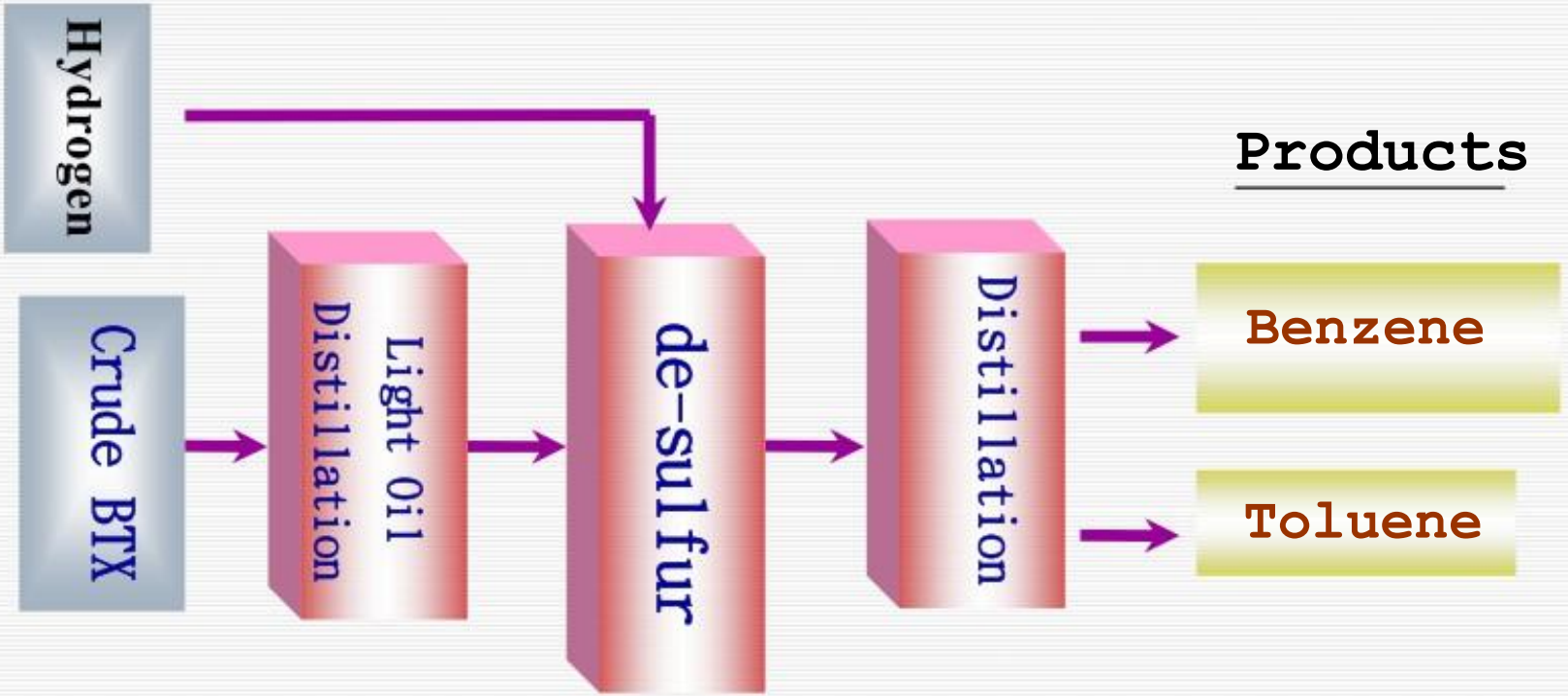
The Relating Product Map of Coal Chemical Industries

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



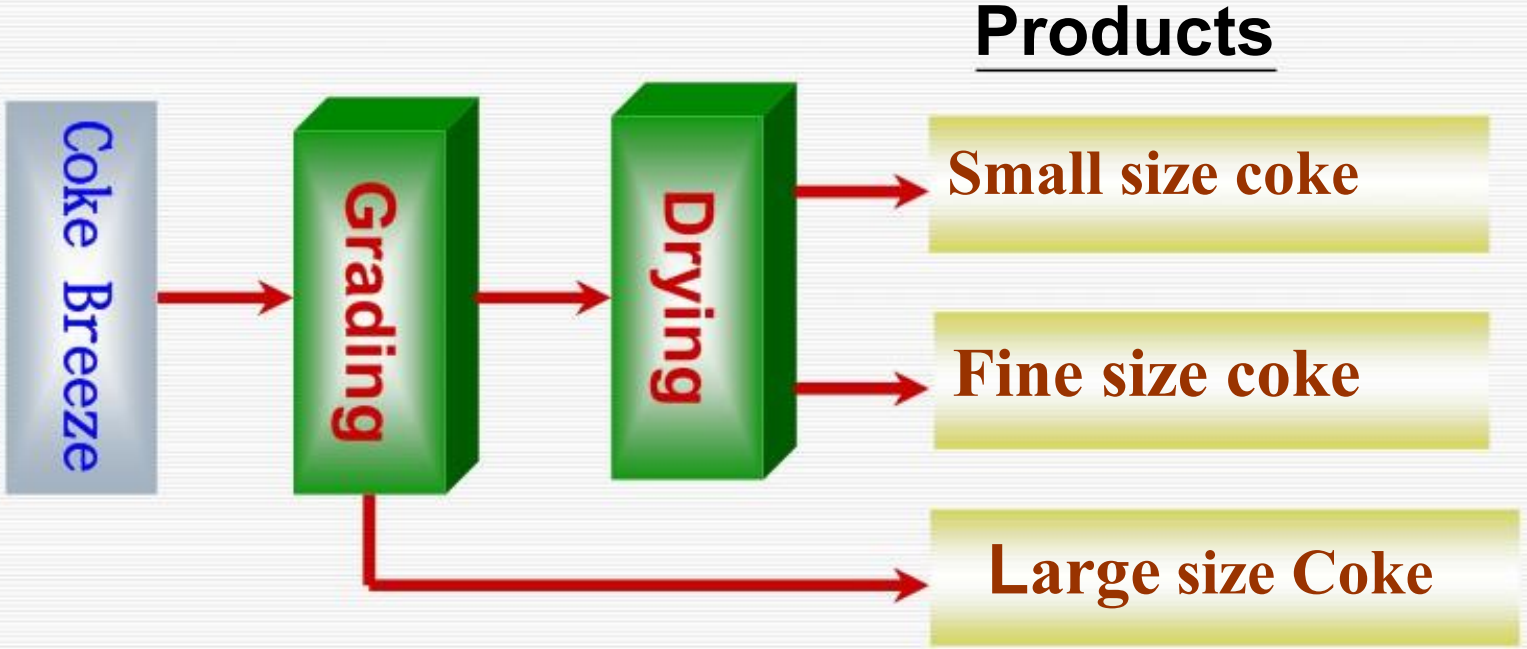
The Relating Product Map of Coal Chemical Industries

The Process of the Light Oil Distillation Plant



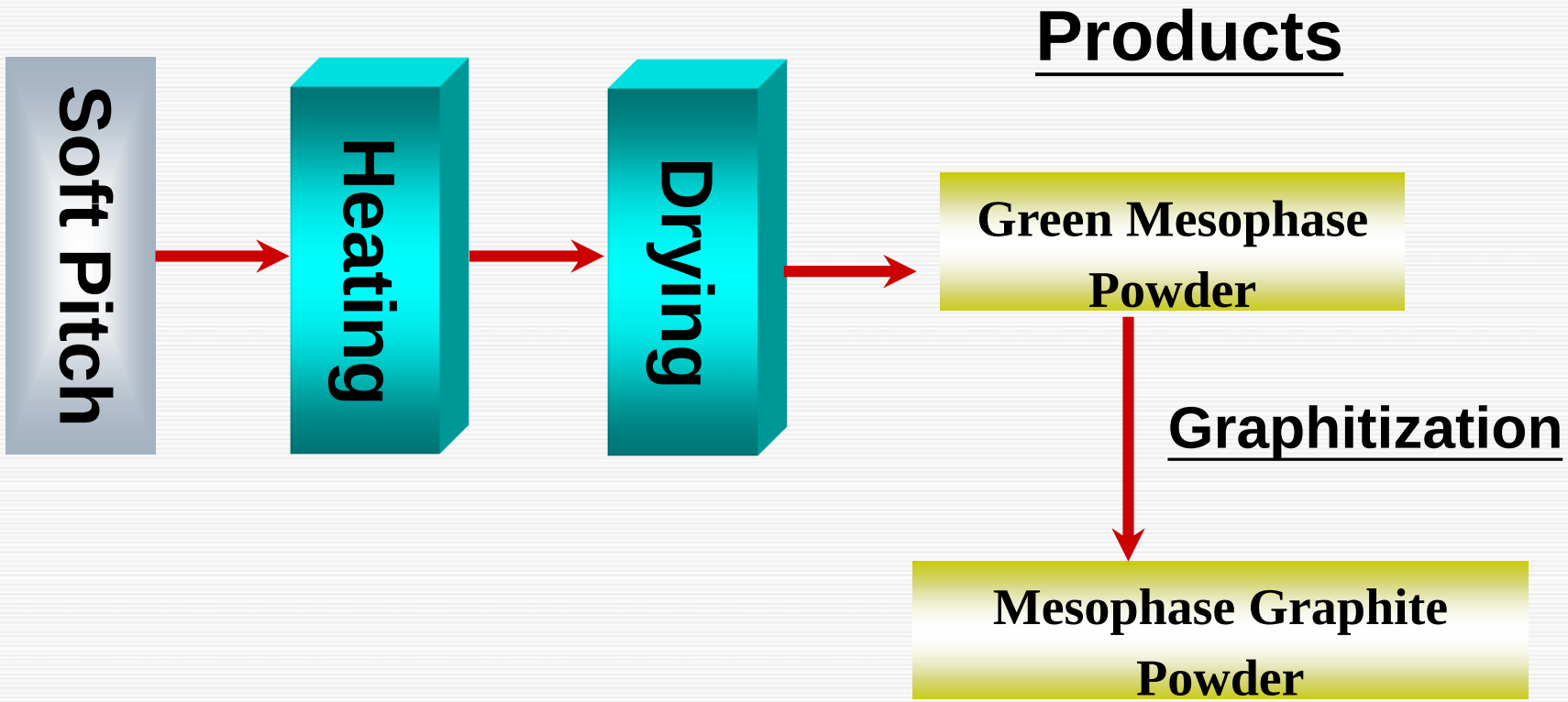
The Relating Product Map of Coal Chemical Industries

- 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 Naphthalene

Naphthalene

Sulfonated naphthalene formaldehyde condensates

Water-reducing admixture

B-naphthol, Tobias acid, J-acid

Dyestuffs pigment

Mothballs

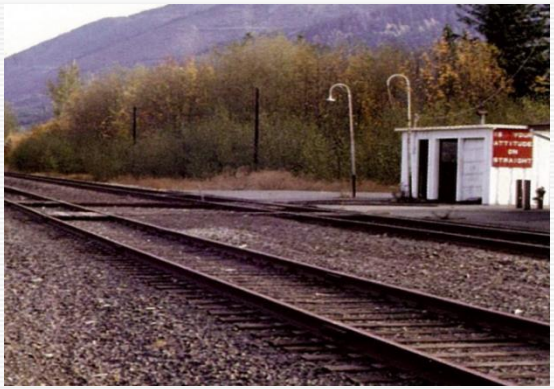
Phthalic anhydride (PA)

The Appliance of Creosote oils

Creosote oils

Carbon black

Wood preservative oil



Wash oil

The Appliance of Benzene

Benzene

Styrene

External shell for 3C's product and sport materials

Phenol

Epoxy resin paint

Caprolactam

Nylon 6

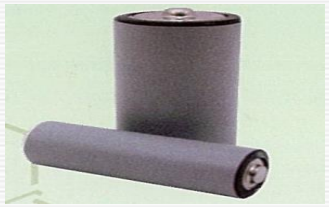
Alkyl-benzene

detergents

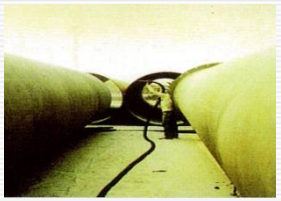
The Appliance of Soft Pitch

Soft Pitch

Primary electrode rod



Water and rust proofing materials



Green Mesophase Powder

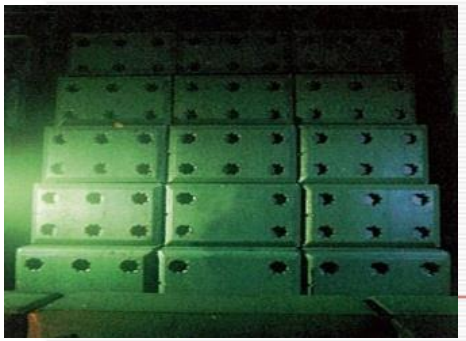
Active Carbon for Supercapacitor

Hard Pitch

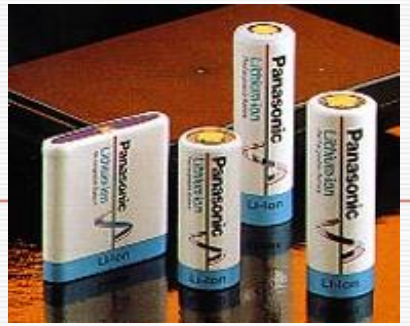
Mesophase Graphite Powder

Roofing Pitch

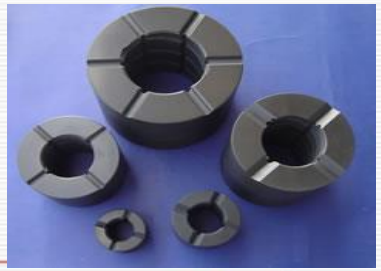
Electrode binder



Lithium Ion Battery



Isotropic Graphite



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

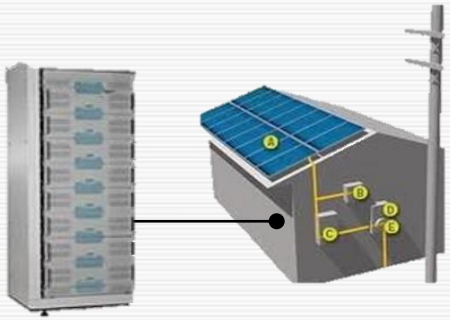
Power Density(W/Kg):Strong ← Low

MG10
MG08
PT/HEV

MG11
FMGP
EV/ESS

MG12
MGP
MG13
Tablets/3C

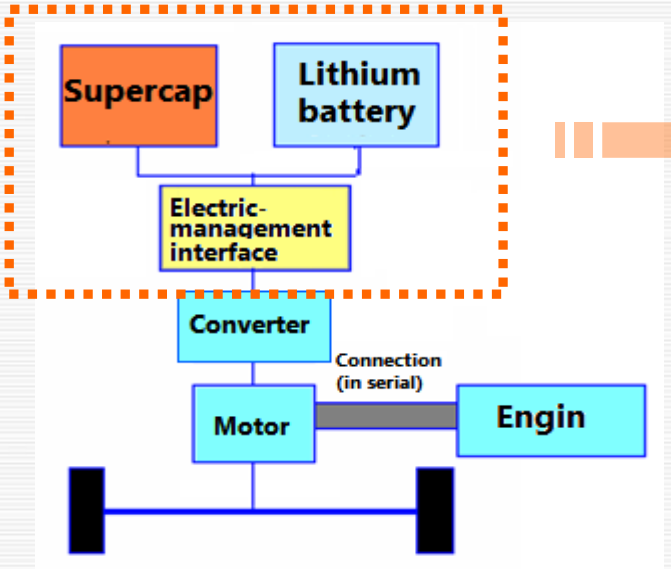


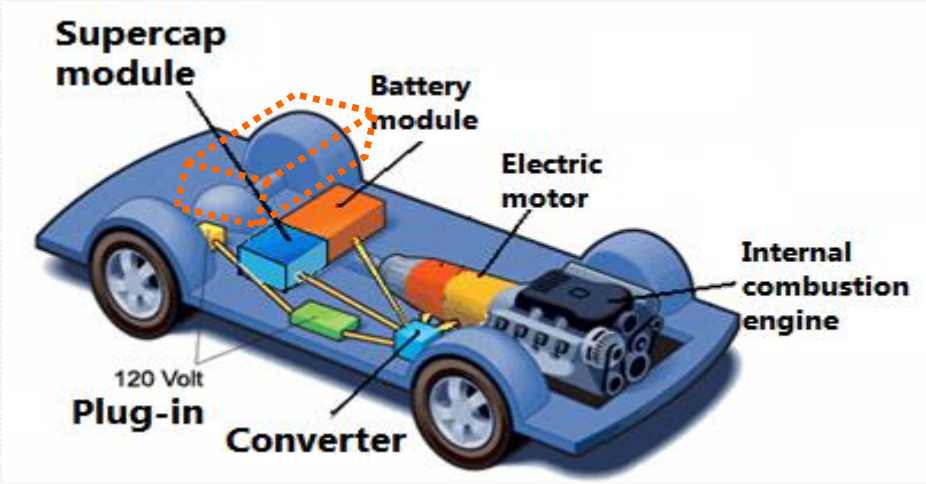




Applications of Supercapacitors

PHEV

(Plug in hybrid electric vehicles)





Also in…

E-Bus

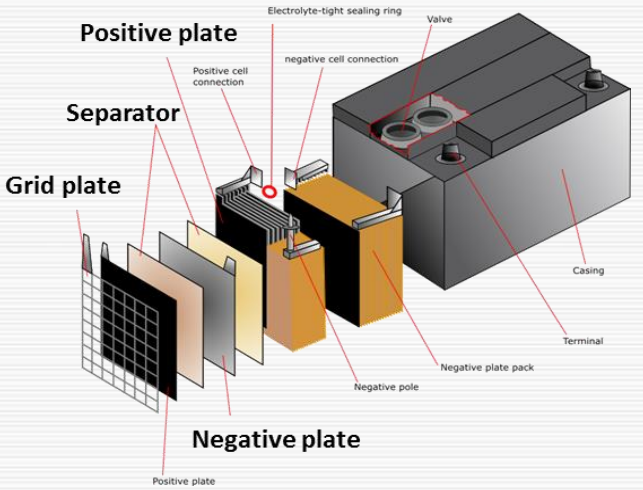
Light Rail Transit

Wind turbine

Introduction of Advanced Lead-Acid Battery

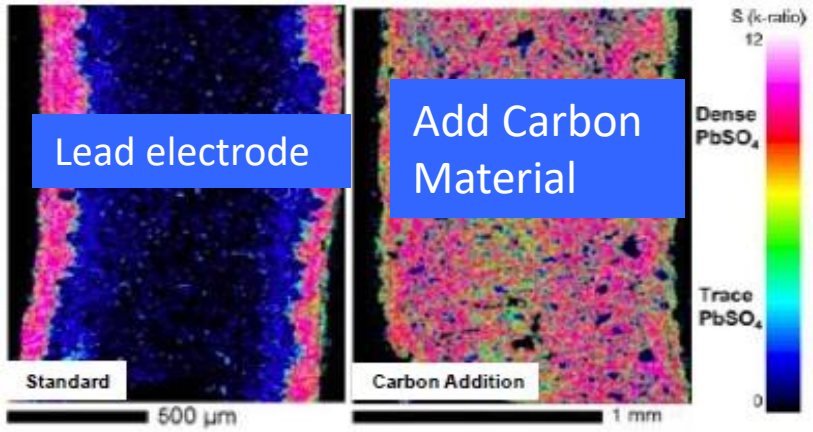
Advanced Lead-Acid Battery

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.

Q&A