
2013 - 2009 Import and Export Technology Analysis in China

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Abstract

According to PCT patent data in PATENTSCOPE of WIPO, collect the key words and China's import and export important industries and products, use field combination and make the search formula, then analyze the present situation of China's import and export, technology of import and export country in China, technology of import and export industry in China, technology of import and export product in China. This article in the country, industry and product three dimensions of time, region and other elements, with multi-angle of view analyzes China's five years of technology import and export situation.

Key words: China, technology import and export, PCT

Research Background

China's import and export commodities are increasing gradually in recent years, China's international PCT patent applications continued to grow, but the specific technology import and export analysis article is very little. In particular, China's import and export industry technology and China's import and export country technology is less. This article analysis PCT patent in China, through in the national, industry and products three dimensions of time, region and other elements, with multi-angle of view analyze China's five years of technology import and export situation.

Research Method and Database

The database is PATENTSCOPE in WIPO, use advanced search and combination retrieval to make following research strategy:

- A. Import and export trends in China for five years: Application date + applicant International + entry state code
- B. Import and export areas in China for five years: Application date + entry state code

- C. Import and export countries in China for five years: Application date + applicant International (or enter the national phase of the country code) +IPC
- D. Import and export industries in China for five years: Application date + description (industry key words) +IPC
- E. Import and export products in China for five years: Application date + patent name (product keyword) +IPC

Method for Confirming Three-Dimensional Degree

Industry and product: According to the import and export trade data released by the Ministry of Commerce and the customs, to confirm the key industries and key products of the scope of the search. Then according to the key industries and key products keywords to find search result ranking pre-position's industry and product to confirm major import and export industries and products.

Country: According to PCT research result in PATENTSCOPE to confirm ranking countries.

Method for Confirming Core Technology

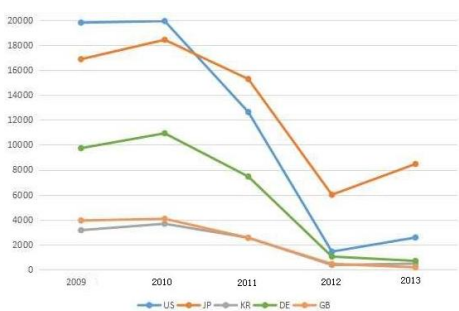
According to priority right number of PCT research result patent list downloaded in PATENTSCOPE to confirm core technology, the core technology imported more than 10 priority number, the export of core technology more than 5 priority number.

Shortcomings and Deficiencies

As the number of PATENTSCOPE database patent is update so the data displayed in this paper is not accurate; Due to the analysis of technical limitations, the patent technology is only statistical analysis to IPC large class, there is no small class in this paper; This article is only the analysis of China's import and export of patent technology, there is no other analysis, for example: the patent right person technology and technology life cycle, etc..

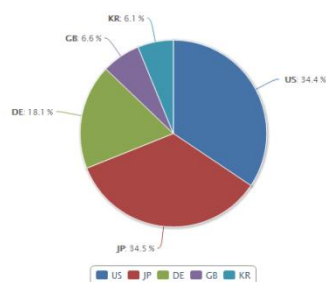
Technology Import and Export Situation in China

Technology Import Situation in China



Picture 1 Tendency of technology import in China

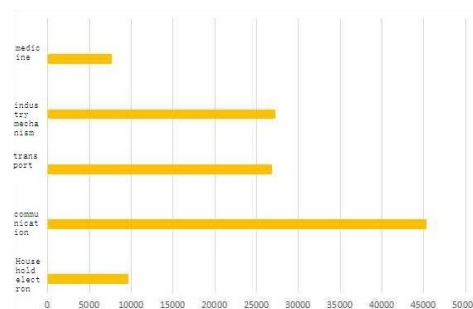
According to picture 1 tendency of technology import in China it could be conclude that: Technology import number decreased as time increased. Technology import number from American decreased most obviously, but technology import number from Korea and Britain decreased less obviously, because of less number.



Picture 2 Country of technology import in China

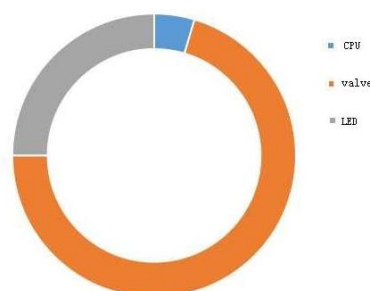
According to picture 2 country of technology

import in China it could be conclude that five main countries: American, Japan, Germany, Britain and Korea. Technology import number from American and Japan are the most, but technology import number from Britain and Korea are the list.



Picture 3 Industry of technology import in China

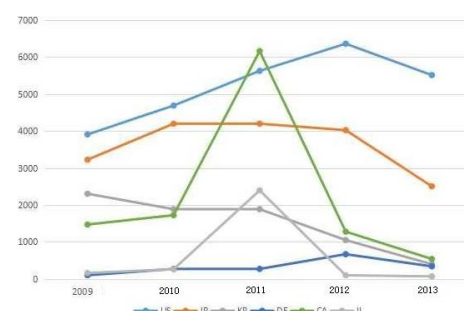
According to picture 3 industry of technology import in China it could be conclude that five main industries: Household electron, Communication, Industry mechanism, Transport, Medicine. Technology import number in communication is the most, but technology import number in Medicine and Household electron are the list.



Picture 4 Product of technology import in China

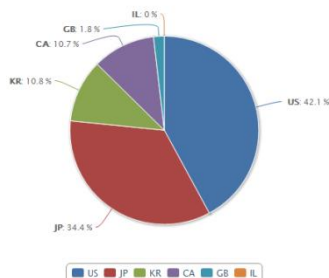
According to picture 4 product of technology import in China it could be conclude that: The first to third number product of technology import in China are CPU, Valve, LED. Therein the most number is valve, the second is LED, and the third is CPU.

Technology Export Situation in China



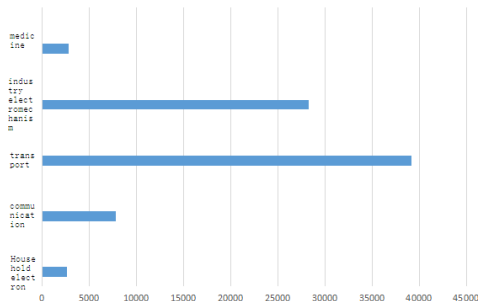
Picture 5 Tendency of technology export in China

According to picture 5 tendency of technology export in China it could be conclude that: Tendency of technology export rise in China resent five years as a whole picture ,therein technology export to Canada and Israel fluctuate largely, the most number is in 2011. Technology number export to Korea and Japan are the less.



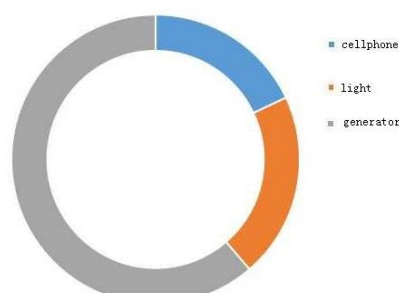
Picture 6 Country of technology export in China

According to picture 6 country of technology export in China it could be conclude that six main countries: American, Japan, Korea, Canada, Britain and Israel. Technology export number to American and Japan are the most, but technology import number to Israel is the list.



Picture 7 Industry of technology export in China

According to picture 7 industry of technology export in China it could be conclude that five main industries: Household electron, Communication, Industry mechanism, Transport, Medicine. Technology export number in transport is the most, but technology export number in Medicine and Household electron are the list.

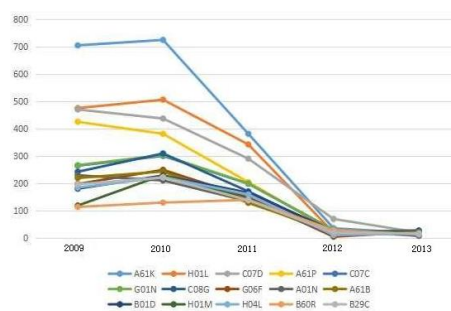


Picture 8 Product of technology export in China

According to picture 8 product of technology in China it could be conclude that: The first to third number product of technology export in China are cellphone, light, generator. Therein the most number is generator, the second is light, the third is cellphone.

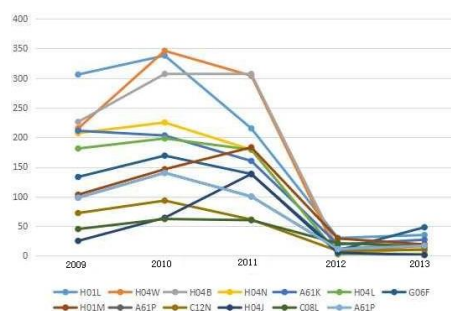
Country Technology Import and Export in China

Country technology import in China



Picture 9 Tendency of technology import from Germany in China

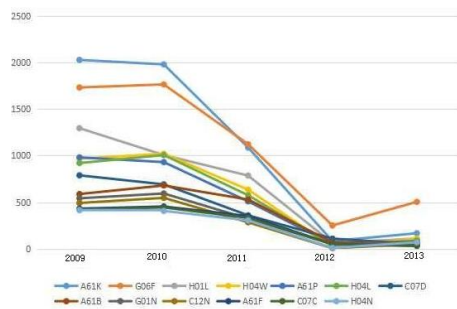
According to picture 9 tendency of technology import from Germany in China it could be conclude that: it is decreasing as a whole picture .Main technology number is 15, therein A61K, H01L number are the most. A61k is that medical, dental or dressing with a product technology. H01L is that Semiconductor device technology.



Picture 10 Tendency of technology import from Korea in China

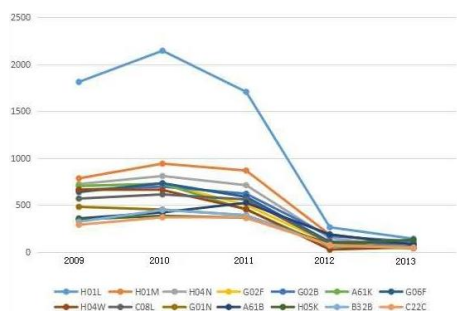
According to picture 10 tendency of technology import from Korea in China it could be conclude that: it is decreasing as a whole picture, therein H04W is increasing in 2010. Main technology number is 13, therein H04W, H04B number are the most. H04W is that wireless communication network technology .H04B is that transmission

technology.



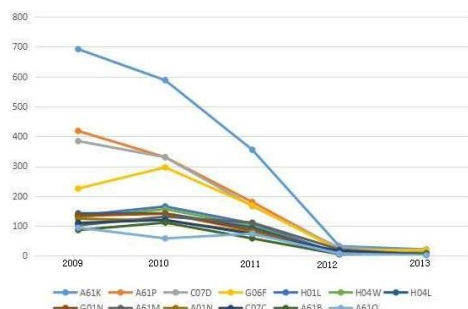
Picture 11 Tendency of technology import from America in China

According to picture 11 tendency of technology import from America in China it could be conclude that: it is decreasing as a whole picture. Main technology number is 13,therein A61K,G06F number are the most.A61K is that medical, dental or dressing with a product technology.G06F is that Electric digital data processing technology.



Picture 12 Tendency of technology import from Japan in China

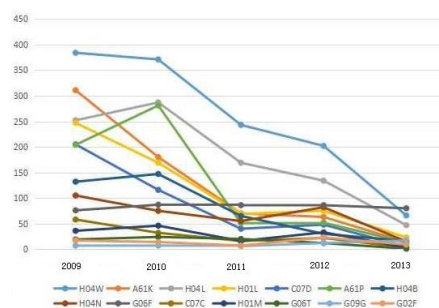
According to picture 12 tendency of technology import from Japan in China it could be conclude that: it is decreasing as a whole picture. Main technology number is 14,therein H01L,H01M number are the most.H01L is that Semiconductor device technology,H01M is that a method or apparatus for direct conversion of chemical energy to electrical energy.



Picture 13 Tendency of technology import from Britain in China

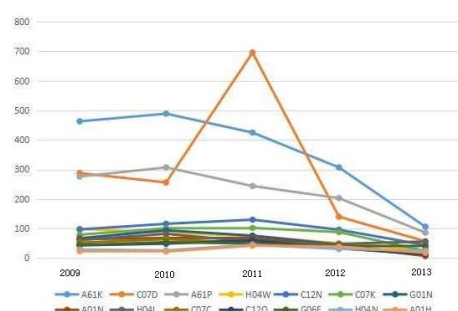
According to picture 13 tendency of technology import from Britain in China it could be conclude that: it is decreasing as a whole picture. Main technology number is 13,therein A61K,A61P,C07D number are the most.A61K is that medical, dental or dressing with a product technology,A61P is that Specific therapeutic activity of a compound or drug,C07D is that Sugar acid technology.

Country Technology Export in China



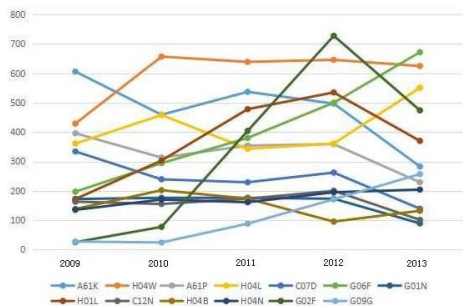
Picture 14 Tendency of technology export into Korea in China

According to picture 14 tendency of technology export into Korea in China it could be conclude that: it is decreasing as a whole picture.A61P is increasing in 2010.Main technology number is 14,therein H04W,H04L number are the most.H04W is that wireless communication network technology ,H04L is that digital information transmission technology.



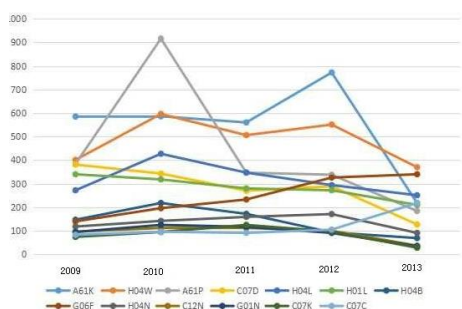
Picture 15 Tendency of technology export into Canada in China

According to picture 15 tendency of technology export into Canada in China it could be conclude that:it is decreasing as a whole picture.C07D is increasing in 2011.Main technology number is 14,therein A61K,A61P number are the most.A61K is that medical, dental or dressing with a product technology,A61P is that Specific therapeutic activity of a compound or drug.



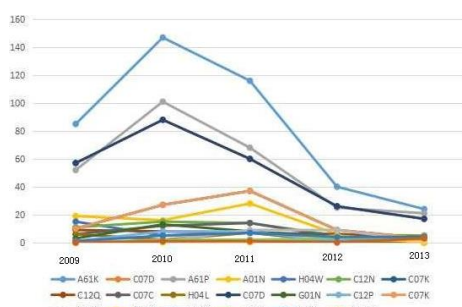
Picture 16 Tendency of technology export into America in China

According to picture 16 tendency of technology export into America in China it could be conclude that:it is smooth and steady as a whole picture.G02F is increasing in 2012.Main technology number is 13,therein A61K,H04W number are the most.A61K is that medical, dental or dressing with a product technology,H04W is that wireless communication network technology.



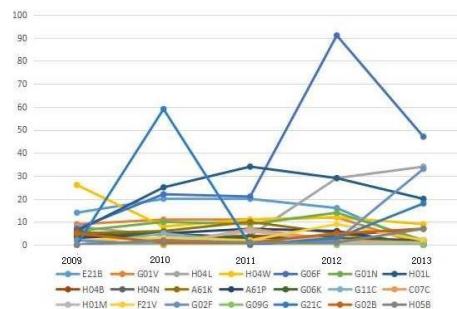
Picture 17 Tendency of technology export into Japan in China

According to picture 17 tendency of technology export into Japan in China it could be conclude that:it is decreasing as a whole picture.A61P is increasing in 2012.Main technology number is 13,therein A61K,H04W number are the most.A61K is that medical, dental or dressing with a product technology,H04W is that wireless communication network technology.



Picture 18 Tendency of technology export into Israel in China

According to picture 18 tendency of technology export into Israel in China it could be conclude that:it is decreasing as a whole picture.Main technology number is 20,therein A61P,A61K,C07D number are the most.A61K is that medical, dental or dressing with a product technology,A61P is that Specific therapeutic activity of a compound or drug,C07D is that Sugar acid technology.

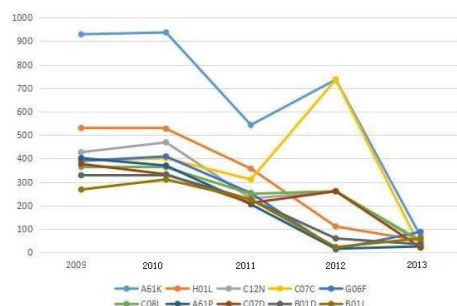


Picture 19 Tendency of technology export into Britain in China

According to picture 19 tendency of technology export into Britain in China it could be conclude that:it is smooth and steady as a whole picture.G06F is increasing in 2010,G21C is increasing in 2012.Main technology number is 21,therein H01L,G06F,G21C number are the most.H01L is that Semiconductor device technology,G06F is that Electric digital data processing technology,G21C is that Nuclear reactor technology.

Industry Technology Import and Export in China

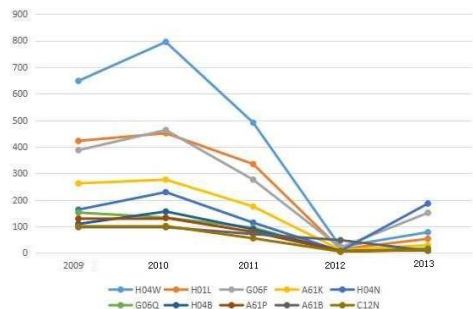
Industry technology import in China



Picture 20 Tendency of technology import in industry mechanism in China

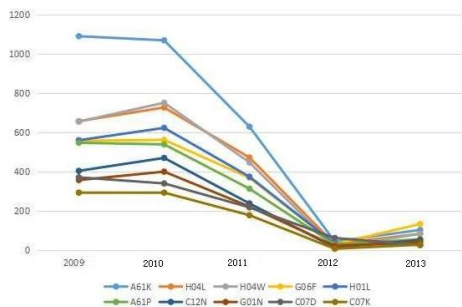
According to picture 20 tendency of technology import in industry mechanism in China it could be conclude that: it is decreasing as a whole

picture..C07C is increasing in 2012. Main technology number is 10, therein H01L, A61K number are the most. H01L is that Semiconductor device technology, A61K is that medical, dental or dressing with a product technology.



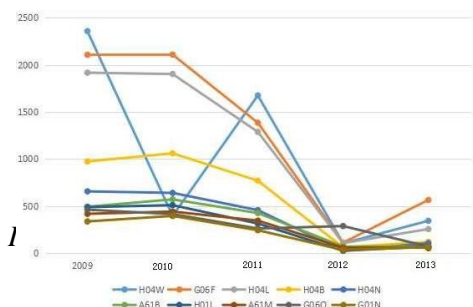
Picture 21 Tendency of technology import in household electron in China

According to picture 21 tendency of technology import in household electron in China it could be concludes that: it is decreasing as a whole picture. All technologies are decreasing in 2012. Main technology number is 10, therein H01L, H04W number are the most. H01L is that Semiconductor device technology, H04W is that wireless communication network technology.



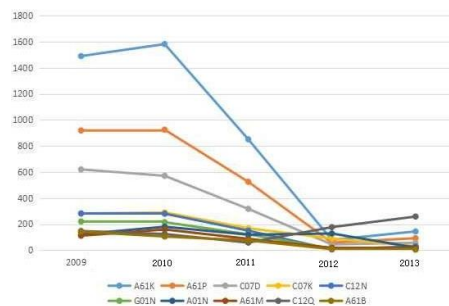
Picture 22 Tendency of technology import in transport in China

According to picture 22 tendency of technology import in transport in China it could be conclude that: it is decreasing as a whole picture. All technologies are increasing in 2013. Main technology number is 10, therein H01L, H04W, A61K number are the most. H01L is that Semiconductor device technology, H04W is that wireless communication network technology, A61K is that medical, dental or dressing with a product technology.



Picture 23 Tendency of technology import in communication in China

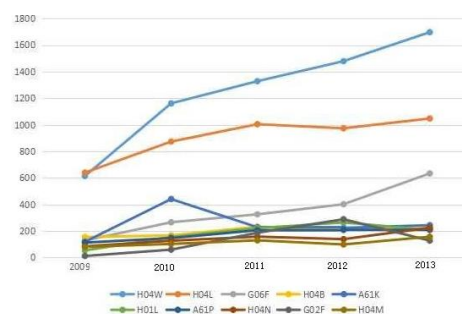
According to picture 23 tendency of technology import in communication in China it could be conclude that: it is decreasing as a whole picture. H04W fluctuate widely. Main technology number is 10, therein H01L, G06F number are the most. H01L is that Semiconductor device technology, G06F is that Electric digital data processing technology.



Picture 24 Tendency of technology import in medicine in China

According to picture 24 tendency of technology import in medicine in China it could be conclude that: it is decreasing as a whole picture. Main technology number is 10, C12Q is increasing mildly, therein A61K, A61P number are the most. A61K is that medical, dental or dressing with a product technology, A61P is that Specific therapeutic activity of a compound or drug.

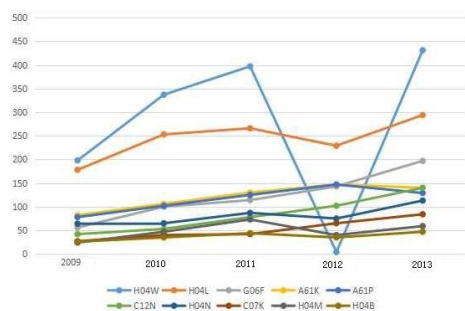
Industry Technology Export in China



Picture 25 Tendency of technology export in industry mechanism in China

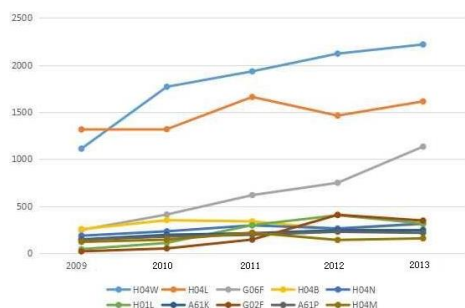
According to picture 25 tendency of technology export in industry mechanism in China it could be conclude that: it is smooth and steady as a whole picture. G06F, H04L, H04W are increasing mildly. H04W, H04L number are the most. H04W is

that wireless communication network technology, H04L is that digital information transmission technology.



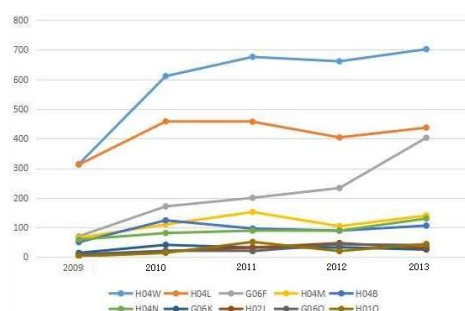
Picture 26 Tendency of technology export in household electron in China

According to picture 26 tendency of technology export in household electron in China it could be conclude that:it is smooth and steady as a whole picture.H04W is decreasing in 2012.H04L number is the most.H04L is that digital information transmission technology.



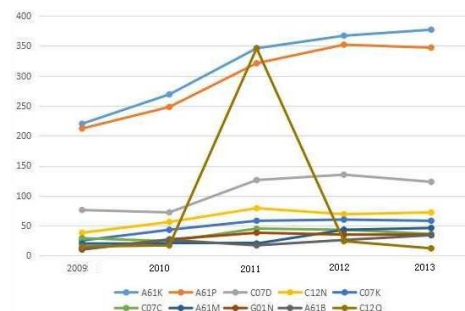
Picture 27 Tendency of technology export in transport in China

According to picture 27 tendency of technology export in household electron in China it could be conclude that:it is smooth and steady as a whole picture. G06F,H04L,H04W are increasing mildly.H04W,H04L,G06F number are the most. H04L is that digital information transmission technology,H04W is that wireless communication network technology,G06F is that Electric digital data processing technology.



Picture 28 Tendency of technology export in communication in China

According to picture 28 tendency of technology export in communication in China it could be conclude that:it is smooth and steady as a whole picture. G06F,H04L,H04W are increasing mildly.H04W,H04L,G06F number are the most.H04L is that digital information transmission technology,H04W is that wireless communication network technology,G06F is that Electric digital data processing technology.

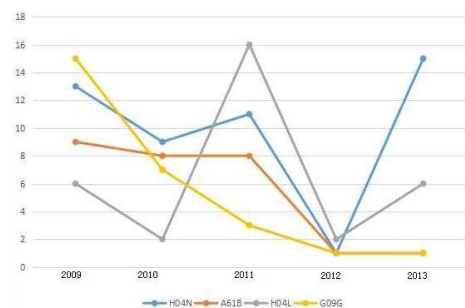


Picture 29 Tendency of technology export in medicine in China

According to picture 29 tendency of technology export in medicine in China it could be conclude that: it is smooth and steady as a whole picture. A61K,A61P,C07Dare increasing mildly,C12Q is increasing in 2011.A61K,A61P,C07Dnumber are the most.A61K is that medical, dental or dressing with a product technology,A61P is that Specific therapeutic activity of a compound or drug,C07D is that Sugar acid technology.

Product Technology Import and Export in China

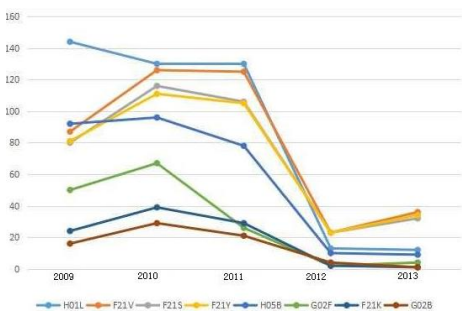
Product Technology Import in China



Picture 30 Tendency of technology import in CPU in China

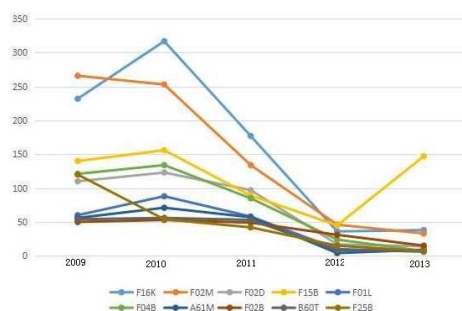
According to picture 30 tendency of technology import in CPU in China it could be concludes that: it is decreasing as a whole picture. H04L fluctuate

wildly. H04N is increasing in 2013. Main technology number is 4. H04N number is the most. H04N is that image communication technology.



Picture 31 Tendency of technology import in LED in China

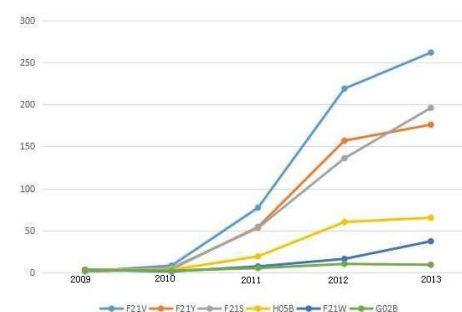
According to picture 31 tendency of technology import in CPU in China it could be conclude that: it is decreasing as a whole picture. Main technology number is 8. H01L, F21V number is the most. H01L is that Semiconductor device technology, F21V is that lighting device or functional characteristics of the system or components thereof.



Picture 32 Tendency of technology import in valve in China

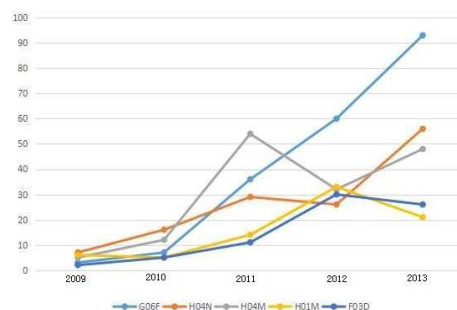
According to picture 32 tendency of technology import in CPU in China it could be conclude that: it is decreasing as a whole picture, F15B is increasing in 2013. Main technology number is 10. F16K, F02M number is the most. F16K is that Valve technology, F02M is that the supply or component of a combustable mixture of a general combustion engine.

Product Technology Export in China



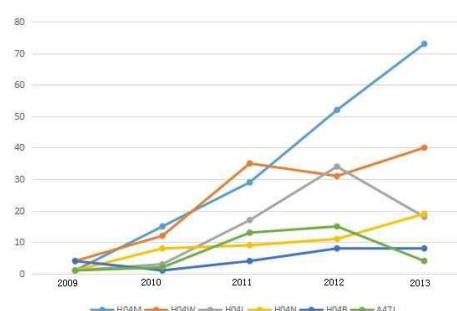
Picture 33 Tendency of technology export in light in China

According to picture 33 tendency of technology export in light in China it could be conclude that: it is increasing as a whole picture. Main technology number is 6. F21V, F21Y number is the most. F21V is that lighting device or functional characteristics of the system or components thereof, F21Y is that related to the composition or type or the color of light.



Picture 34 Tendency of technology export in generator in China

According to picture 34 tendency of technology export in generator in China it could be conclude that: it is increasing as a whole picture. H01M is decreasing mildly in 2013. Main technology number is 5. G06F number is the most. G06F is that Electric digital data processing technology.



Picture 35 Tendency of technology export in cellphone in China

According to picture 35 tendency of technology export in cellphone in China it could be conclude that: it is increasing as a whole picture. A47J and H04L are decreasing mildly in 2013. Main technology number is 6. H04M number is the most. H04M is that Telephone

communication technology.

Core Technology Import and Export in China

Core Technology Import in China

Table 1 Core technology import in China

N O.	Patent number	Patent name	Prior ity number	IPC number
1	WO2014143162	Imaging system and method	15	A61B6/14
2	WO2014106210	Techniques to compensate for calibration drifts in infrared imaging devices	10	H04N5/33;H04N5/365
3	WO2014105993	Electrical cabinet infrared monitor systems and methods	14	H04N5/33;H04N7/18;H04N5/232
4	WO2014100658	Syringe pump system	17	A61M1/10;A61M7/00;A61M5/145
5	WO2014099226	Personal cleansing compositions containing zinc amino acid/trimethyl glycine halide	17	A61K8/27;A61K8/44;A61Q11/00;A61Q17/04;A61Q19/10
6	WO2014093622	Delivery engineering and optimization of systems, methods and compositions for sequence	13	C12N15/63

7	WO2014063852	Continuous process for conversion of lignin to useful compounds	20	C10G3/00;C07C37/54;C08H7/00;C08G63/123
8	WO2014059047	Video distribution and playback	10	H04L9/00
9	WO2014012115	Method for inducing cells to less mature state	11	C12N5/02
10	WO2013156134	Methods and structures for assembling lancet housing assemblies for handheld medical diagnostic devices	11	A61B5/15;A61B5/151;A61B5/157
11	WO2013137199	Sealing device and sealing structure	17	F16J15/18

According to table 1 it could be conclude that: The first priority number of core import technology is 20, the second is 17.H04N and A61B are two patents of IPC.H04N is that image communication technology,A61B is that diagnose technology.

Core Technology Export in China

Table 2 Core technology export in China

N O.	Patent number	Patent name	Prior ity number	IPC
1	WO2015074168	Layered wave-over topping type wave energy power-generating apparatus	5	F03B 13/22;F03B 13/14
2	WO2015032131	Bentonite modifier, and modified bentonite and application thereof	5	C04B 24/12;C04B 24/02;C04B 24/18;C04B 22/14;C04B 22/08;C04B 22/06;C04B 28/00;C04B 103/46;C04B 103/60;C04B 111/20;C04B 111/27
3	WO2015061934	Polygonu n capitatum extract and use thereof and preparetio n	5	A61K 36/70;A61K 9/48;A61K 9/20;A61K 9/14;A61K

		containing polygonu n capitatum extract		9/08;A61 P 3/10
4	WO2015027591	Food processor	7	A47J 43/044;A47J 43/07;A47J 43/08;A47J 19/00
5	WO2015027579	All-weather conical sand making machine and self-adjustmen t method	6	B02C 2/04
6	WO2015014014	Terminal, data interactio n and data interactio n system	10	G06F 15/163
7	WO2015014015	Terminal	8	H04M 1/725
8	WO2015003293	Double-drum washing machine	5	D06F 31/00
9	WO2014173130	Method for preparing carbonace ous heat source materials	6	A24D 3/16
10	WO2014166272	Gasket,engine and automobile	5	F16B 43/00;F16H 57/04;F16H 48/00
11	WO2014121578	Anti-lost device for implemen ting anti-lost function of mobile device	5	G08B 13/24;H04M 1/725

According to table 2 it could be conclude that:

The first priority number of core import technology is 10, the second is 8. There is no same IPC in these 11 patents.

Conclusion

Recent five years import technology in China

China's five year import technology decreased with time increased, import five main countries: American, Japan, Germany, Britain and Korea, five main industries: Household electron, Communication, Industry mechanism, Transport, Medicine, three main products are CPU, Valve, LED. Technology import from Germany are A61K、H01L;Technology import from Korea are H04W、H04B;Technology import from America are A61K、G06F;Technology import from Japan are H01L、H01M;Technology import from Britain are A61K、A61P and C07D.Technology import in industry mechanism are A61K、H01L;Technology import in household electron are H04W、H01L;Technology import in transport are H04W、H04L and A61K;Technology import in communication are G06F、H04;Technology import in medicine are A61K、A61P.Technology import in CPU is H04N;Technology import in LED are H01L、F21V;Technology import in valve are F16K、F02M.Core technology import number is 11,main IPC are H04N、A61B.

Recent five years export technology in China

China's five year export technology increased with time increased ,export six main countries::American, Japan, Korea, Canada, Britain and Israel, five main industries: Household electron, Communication, Industry mechanism, Transport, Medicine, three main products are cellphone, light, generator. Technology export into Korea are H04W、H04L;Technology export into Canada are A61K、A61P;Technology export into

America are A61K、H04W;Technology export into Japan are A61K、H04W;Technology export into Israel are A61K、A61P and C07D;Technology export into Britain are H01L、G06F and G21C.Technology export in industry mechanism are H04W、H04L;Technology export in household electron is H04L;Technology export in transport are H04W、H04L and G06F;Technology export in communication are H04W、H04L and G06F;Technology export in medicine are A61K、A61P and C07D.Technology export in light are F21V、F21Y;Technology export in generator is G06F;Technology export in cellphone is H04M.Core technology export number is 11, no main IPC.

References

1. [夏目 健一郎](#),2013.PATENTSCOPE: WIPO's database on patent information. Journal of Information Processing and Management, 2013, Vol.56 (7), pp.425-439
2. 高木 善幸,2011.Global Strategy of WIPO for the Promotion of Patent Information. Journal of Information Processing and Management, 2011, Vol.54 (6), pp.353-356
3. Dong Zhou, Mark Truran, Jianxun Liu, Sanrong Zhang,2014.Using multiple query representations in patent prior-art search. Information Retrieval, 2014, Vol.17 (5-6), pp.471-491
4. Dietmar Dirnberger,2016. The use of mind mapping software for patent search and management. World Patent Information, 2016,08,004
5. Anonymous,2011.China Chamber of Commerce for Import & Export of Machinery & Electronic Products; China International Green Innovative Products & Technologies Show 2011 to be Held in November, Guangzhou, China. Computers, Networks & Communications, 2011