

- I. IPC
- II. FI
- III. F-terms**
- IV. Reference tool

18

---(Slide 18)---

Next, let me explain the F-term.

First, I would like to tell you why the F-term was created.

As I mentioned, the function of the FI is to subdivide an IPC subgroup. In this regard, the FI is suitable for categorizing patent documents.

However, as many examiners know, other functions are also required for classification systems: namely, “analysis tools” and “search keys”.

The FI is assigned mainly to distinguishable technical features written in the claims. However, claims often include many technical features. In addition, detailed explanations of applications also disclose many technical matters.

Assigning plural FI or IPC entries is one solution, but it is not almighty. The JPO invented the F-term system as one additional method.

**F-term (File forming term)** is a unique classification system invented and maintained by the JPO. It has the following features.

- Hierarchical tree structure with multi-aspect enables analysis of a patent document from multiple -viewpoints
  - Assigned mainly to **MOST** Japanese patent publications and Japanese utility model gazettes
- JPO recently started to assign F-terms also to some Chinese documents.

19

---(Slide 19)---

The F-term, short for “File forming term”, is a unique classification system invented and maintained by the JPO. It has the following features:

- A hierarchical tree structure with multi-aspects, which enable analysis of a patent document from multiple-viewpoints
- Assignment mainly to MOST Japanese patent publications and Japanese utility model gazettes
- F-terms recently assigned by the JPO to certain Chinese documents

### III. F-term

#### Relationship between FI, Theme, and F-term

1/00				1/02		1/04	1/06		1/08	2/00	2/02				2/04		2/06		FI				
A	B	C	Z	101	102		A	B	Z		A	B	301 A	301 B	Z	A	B	C		Z	A	B	C
Theme 1 (with F-term)										Theme 2 (without F-term)					Theme 3 (with F-term)					Theme			
			AA 00	AA 01	AA 02	AA 03	AA 04														F-term		
			BB 00	BB 01	BB 02																		
			CC 00	CC 01	CC 02	CC 03																	
			DD 00	DD 01	DD 02	DD 03																	

20

---(Slide 20)---

This slide shows the relationship between FI, theme, and F-term.

Please remember that FI subdivides IPC, and themes are groups of FIs.

For example, "Theme 1" covers an FI range from 1/00 through 1/08.

Please also note that each F-term key belongs to one theme, and that every F-term key is always used with its theme code.

In other words, an F-term key without its theme code makes no sense.

I would also now like to make another point.

In this figure, themes 1 and 3 have F-term lists, but theme 2 doesn't.

When FI of a theme is organized enough to analyze and search patent documents, it is not necessary to create an F-term for the theme.

### III. F-term

Comparison among FI, F-term, & IPC

	FI	F-term	IPC
Total number of entries	190,000	360,000	70,000
Coverage of patent documents	*Mainly JP documents	*Mainly JP documents	Global
Coverage of technical fields	100%	70%	100%
Function	Categorize	Analyze	Categorize

\*JPO started to assign FI / F-term to some Chinese documents 21

---(Slide 21)---

This shows a comparison among FI, F-term, and IPC.

The total number of FI entries is 190,000. This is more than twice that of IPC's.

F-term has 360,000 entries.

You can understand, therefore, that F-term is a useful tool to analyze and search patent documents.

FI and F-term also cover Japanese utility model gazettes, but they basically do **NOT** cover foreign patent publications.

FI covers all technical fields, but F-term is made for **only** 70% of them.

There are 2,600 themes in total, and 1,800 of them have F-term.

Please see this table for a current update.

Chinese patent publications have recently been increasing significantly, and many patent offices are trying to establish effective search tools for them.

As I said, the JPO has begun to classify Chinese patent publications using FI and F-term.

### III. F-term

Theme code      Subject of theme

Theme 5B020

INPUT FROM KEYBOARDS OR THE LIKE

The theme 5B020 as a whole covers this range of FIs

G06F3/02-3/027

Viewpoint	F-term	FI Cover Range	
AA	AA00		
	INPUT DATA		
	Numbers		
	Alphanumeric characters		
	Kana		
	Japanese syllabaries		
	Roman characters		
	Chinese character		
	AA01		
	Others		
BB	BB00		
	Electronic		
	Terminals		
	Point-to-point		
	Clocks		
	Copiers		
	Others		
	JJ	JJ00	
		ERROR	
		detecting input data errors	
inputting identical data a plurality of times			
comparing with registered data			
comparing with input from other means			
JJ01			
Failures of input equipment			
checking circuits			
Automatic testing			
KK	KK00		
	KK01		
	KK02		
	KK03		
	KK04		
	KK05		
	KK06		
	KK07		
	KK08		
	KK09		

Terms from AA01 through AA20 belong to the Viewpoint AA that means "INPUT DATA"

Terms from JJ11 through JJ14 are assigned only to documents having these FI ranges

G06F3/02,3800E; 3/02,3800Z

G06F3/02,3800A-

22

---(Slide 22)---

This is an F-term list of the theme "5B020".

I will explain later how to access it using Patent Map Guidance of J-PlatPat.

Now, let's take a look at each component of the schedule.

Utilizing F-term as a search key

- Specify the F-term theme based on FI or IPC
- Select F-terms that match technical elements of a search target
- Compose search queries by combining these terms

Example of a search target

*“Granular calcium oxide ceramics  
with low heat expansion”*

-> Theme 4G031 Composition of oxide ceramics

F-term AA04, BA24, CA05

-> Query 4G031(AA04\*BA24\*CA05)

23

---(Slide 23)---

The next topic utilizes F-term as a search key.

*In the following slides, I will explain an outline of search methods and also show a conceptual example.*

First, we specify the best theme based on FI or IPC assigned to the search target.

Next, we select appropriate F-terms from the F-term list of the theme.

Finally, we compose a search query combining these entries and logical operators.

Let's look at an example where our search target is a patent publication that discloses “granular calcium oxide ceramics with low heat expansion.”

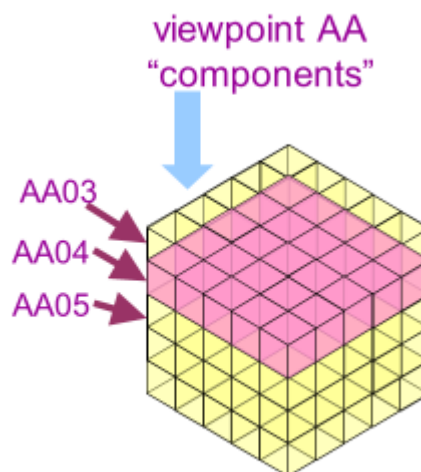
Let's assume that 4G031 is selected as the best theme for the search, and that the highly related F-terms AA04, BA24, and CA05 are found.

Then we can compose the query “AA04 and BA24 and CA05”.

### III. F-term

Example of a search target  
“Granular calcium oxide ceramics  
with low heat expansion”

4G031		Composition of oxide ceramics COMB35/42-35/51					
Viewpoint	AA	AA01	AA02	AA03	AA04	AA05	F-term
AA	COMPONENTS	Alkali metal oxides	Alkali earth metal oxides	Magnesium oxides	Calcium oxides	Strontium oxides	Barium oxides
		AA01	AA02	AA03	AA04	AA05	AA06
		Titanium oxides	AA07	AA08	AA09	AA10	AA11
		AA12	AA13	AA14	AA15	AA16	AA17
		Iron oxides	AA18	AA19	AA20	AA21	AA22
BA	FUNCTIONS AND USES	Electric and electronic functions and uses	Conductivity	Ion conductivity	Storage ion-leak resistance bodies	High-conduction (HTC) semiconductors	High-conduction (HTC) semiconductors
		BA01	BA02	BA03	BA04	BA05	BA06
		Current-collection characteristics	Insulation characteristics	Magnetic heat support members	Optical functions and uses	Transparency	Electrical and optical characteristics
		BA07	BA08	BA09	BA10	BA11	BA12
		Thermal functions and uses	Heat insulation	Heat- and electro-mechanical characteristics	Low heat expansion	Pressure resistance	Optical and physical functions and uses
CA	STRUCTURES	Control of the crystal phase	Arrangement of crystals	Structure where different parts are composed of different compounds	Crystalline grains of characteristic shapes and sizes	Granularity	
		CA01	CA02	CA03	CA04	CA05	CA06



24

---(Slide 24)---

This, along with the following two slides, shows a process to narrow down the scope of patent documents.

The large cube represents an entire collection of documents classified into the theme 4G031.

Please imagine that each small cube represents a single document.

Each cube, or document, is indexed by the F-terms of the theme.

The table to the left is an F-term list of the theme 4G031.

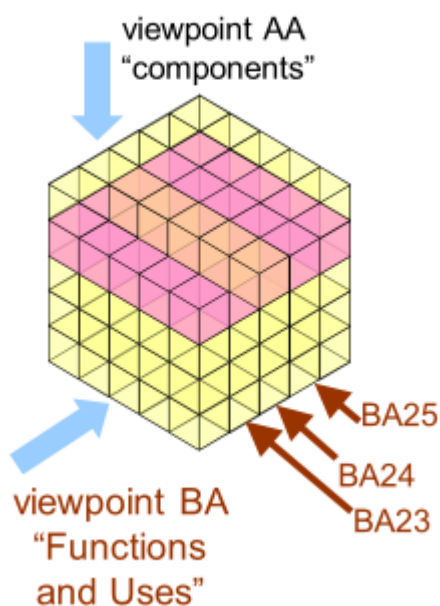
In the list we can find the viewpoint AA “components” along with one of its entries: AA04 “Calcium oxides.”

Using a query including the F-term AA04 enables us to narrow down the scope like the figure to the right.

### III. F-term

Example of a search target  
“Granular calcium oxide ceramics  
with low heat expansion”

90001		Composition of oxide ceramics COMB35/42-35/51					
Viewpoint	AA	AA01	AA02	AA03	AA04	AA05	AA06
AA	COMPOSITIONS	Alkali metal oxides	Alkali earth metal oxides	Magnesium oxides	Calcium oxides	Strontium oxides	Barium oxides
		Titanium oxides	Zirconium oxides	Vanadium oxides	Niobium oxides	Tantalum oxides	Chromium oxides
		Iron oxides	Cobalt oxides	Nickel oxides	Oxides from Group B to B6	Copper oxides	Zinc oxides
		Tin oxides	Tungsten oxides	Molybdenum oxides	Antimony oxides	Bismuth oxides	SnO <sub>2</sub>
BA	FUNCTIONS AND USES	<b>BA24</b> <b>Low heat expansion</b>					
		Thermal functions and uses	Heat insulation	Heat and electro-mechanical characteristics	Low heat expansion	Plasma treatment	Optical and physical functions and uses
GA	STRUCTURES	Control of the crystal phase	Arrangement of crystals	Structure where different phases are composed of different compounds	Crystalline grains of characteristic shapes and sizes	Granularity	



25

---(Slide 25)---

Next, we can find another viewpoint, BA “Functions and Uses”, and one of its entries, BA24 “Low heat expansion”.

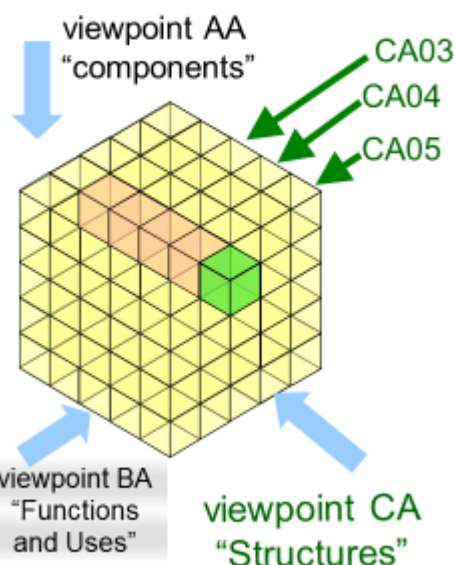
Using a query combining two F-term entries enables us to narrow down the scope.



### III. F-term

Example of a search target  
“Granular calcium oxide ceramics  
with low heat expansion”

SC001		Composition of oxide ceramics COMB35/42-35/51					
Viewpoint	Category	AA1	AA2	AA3	AA4	AA5	F-term
AA	COMPONENTS	Alkali metal oxides	Alkali earth metal oxides	Magnesium oxides	Calcium oxides	Strontium oxides	Barium oxides
		AA1	AA2	AA3	AA4	AA5	AA6
		Titanium oxides	Zirconium oxides	Vanadium oxides	Niobium oxides	Tantalum oxides	Chromium oxides
		AA7	AA8	AA9	AA10	AA11	AA12
		Iron oxides	Cobalt oxides	Nickel oxides	Oxides from Group B to B6	Copper oxides	Zinc oxides
		AA13	AA14	AA15	AA16	AA17	AA18
		Ti oxides	La and oxides	Phosphorus oxides	Antimony oxides	Bismuth oxides	Sn oxides
		AA19	AA20	AA21	AA22	AA23	AA24
		Electric and electronic functions and uses	Conductivity	Ion conductivity	Storage ion-leak resistance bodies	High-conductivity (HTC) semiconductors	High-conductivity (HTC) semiconductors
		AA25	AA26	AA27	AA28	AA29	AA30
BA	FUNCTIONS AND USES	Current-carrying characteristics	Insulation characteristics	Magnetic heat support members	Carbon functions and uses	Fluorescence	Electrical and optical characteristics
		AA31	AA32	AA33	AA34	AA35	AA36
		Thermal functions and uses	Heat insulation	Heat and light-transmission	Low heat expansion	Plasma substrates	Optical and physical functions and uses
		AA37	AA38	AA39	AA40	AA41	AA42
CA	STRUCTURES	CA1	CA2	CA3	CA4	CA5	CA6
		Control of crystal phase	Granularity	Granularity	Granularity	Granularity	Granularity



26

---(Slide 26)---

Furthermore, we can find another viewpoint CA “structures”, and one of its entries, CA05 “granularity.”

Using a query combining three F-terms enables us to narrow down the scope the smallest.

In this way, we can perform effective searches by combining appropriate F-terms.