

**Patent Search For Engineers And Lawyers**  
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**Lecture - 27**  
**Hands on Patent Landscape (Contd.)**

Welcome to the Hands on Patent Landscape search and analysis. In this part of the lecture we will take up the area of the chemical arts, which represents the area of chemistry chemical engineering.

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And, understand with an example how to go about with the patent landscape search.

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### Polyethylene furanoate (PEF)

- Polyethylene Furanoate or PEF or Polyethylene furandicarboxylate
- It is obtained by the polycondensation of furandicarboxylic acid (FDCA) and ethylene glycol
- FDCA can be used as a replacement to terephthalic acid. Terephthalic acid is a petroleum based monomer primarily used to produce polyethylene terephthalate (PET)

2,5-furandicarboxylic acid + HO-CH<sub>2</sub>-CH<sub>2</sub>-OH → Polyethylene furanoate

FDCA

One of the important developments in the area of chemistry is the identification of sustainable material, plastics is a big burden on the planet. Alternatives in terms of looking at bio plastics has become a very important option not only from the point of view of sustainability, it has also caught the imagination of major bottling companies in the world. Here is one example of polyethylene furanoate, which is bringing in a lot of promise to the industry and society in the area of what we call bio plastics or which are called green plastics.

It is very interesting to note that the first patent that was filed in this area goes back to 1951. It was a US patent, it had several process claims and some product claims. This is an interesting area, let us understand how do we do a patent landscape search and analysis in relation to this particular molecule.

The first thing that we need to know is what is the nature of this molecule? How is this prepared? What are the various ways in which this particular molecule can be used in terms of its applications? So, here again we are focusing on the technology in relation to this particular molecule, often as a patent searcher one has to grapple with the aspect that one may not be from the particular technology area. And, is it that one can actually go about with the adequate way of preparing a patent landscaper patent landscape.

So, the search for patent landscape often brings in this difficulty, because the first step is to look at the understanding of the technology. If you are not from the domain, it may be

good to sit with an expert or a researcher in the area to understand, what is the technology, how is the technology used in terms of development of products? So, that one is clear about the basic aspects of the understanding of the technology.

Today patent searchers work across domains. In fact, some patent search has become very well versed, because of the amount of time they spent in relation to patent search in a given area. Though they are not from that discipline, based on the experience of doing patent landscapes patent searches, they become fairly well versed with the area.

So, it is possible that one can actually though you are not from the technology area one can actually understand that from the point of view of sitting with an expert or a researcher to gather the details of that particular technology. Now, here is a case of this molecule the alternate terms that are used for polyethylene furanoate is polyethylene furandicarboxylate. So, there is a specific chemical name one can look at the cache register cache as information can be obtained, the chemical structure of this particular molecule is also given.

So, what happens it is understanding the basic chemistry in this case is a little important to know the details of the molecule. How is this compound update? As you can see in this particular equation, you have 2,5 furandicarboxylic acid combines with ethylene glycol to form polyethylene furanoate. So, this is a condensation step and it is a poly condensation step.

So, there are n number of molecules that are possible. Why is this become important and it is gaining attention worldwide? Is that FDCA is a replacement can be a very good replacement for terephthalic acid. Where terephthalic acid becomes the starting molecule for generation of what we call polyethylene terephthalate, which are typically the plastics that we see in relation to the technology that is used.

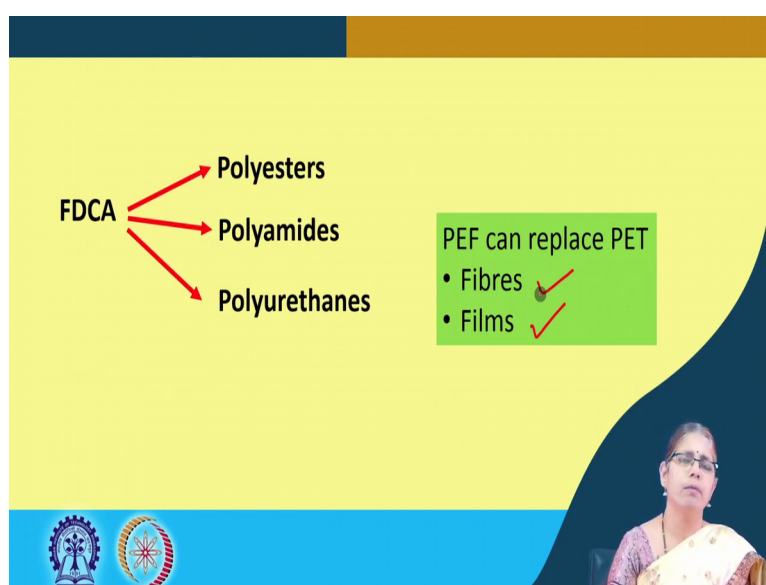
So, pet polyethylene terephthalate production is based on the use of terephthalic acid with ethylene glycol forming polyethylene terephthalate. So, here we are looking at replacing terephthalic acid with FDCA. So, what is greed about it is that FDC a sources can be obtained from plants.

And, so, therefore, this bringing brings in the aspect of bio based starter material which is the FDCA. And so, one can actually get into the area of bio plastics and this is

purported to be sustainable from the point of view of the PEF based manufacturing. Unlike terephthalic acid, which is a petroleum based monomer FDCA can be obtained from biological sources.

So, here you have the promise of polyethylene furanoate to bring in the area of where we have green plastics. Incidentally there are new developments in this area and a lot of companies are operating to capture the area from the point of view of renewable as well as sustainable solutions for the future.

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Polyethylene furanoate is bringing in a lot of promise, because of its unique properties in terms of providing for what we call improved properties in relation to barrier and also the sustainability with respect to polyethylene furanoate and its utility in relation to several applications. So, if one way to embark on a patent landscape search in relation to this particular area, the starting point will be to look at the developments in relation to PEF, that is the formation of PEF which is already covered by a patent way back in 1951.

So, what are the different derivatives of the molecule, what are the process changes to enhance the formation of PEF those could be improvements in the area. And then use of PEF in relation to developments in relation to making fibers and films. So, here you have basic improvements in relation to the reaction you have the use of this reaction to generate products. So, this is the likely place where we are looking at the improvements in relation to that particular invention.



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Identify appropriate keywords related to the field of study

Polyethylene Furanoate or "Polyethylene Furanoate" or (PEF)

One can use quotation marks (" ") to search for an entire expression when searching with database.

The wildcard symbols are:

- \* String of characters of any length
- ? 0 (zero) or 1 character
- # Exactly 1 character



So, if one is looking at embarking on a patent landscape search identifying the keywords would be to look at the alternate terms for polyfuranoate net, use them in relation to the proximity, in relation to certain words, and using a appropriate database for search. Since, polyfuranoate developments also represent certain areas in chemistry one can also look at the relevant IPC codes to build a keyword and a IPC combination search to pull out the patent data set.

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**Classification codes**

IPC

C08G-063/672: Dicarboxylic acids and dihydroxy compounds

CPC:

C07D-0307/68: Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

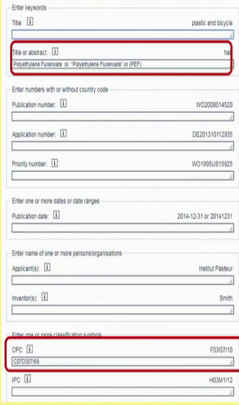


The relevant classification codes for this particular, in the molecule and its interventions is this belongs to the class of compounds which are dicarboxylic acids. So, one can look at this particular IPC, again based on the carbon groupings in that one can again look at another IPC, which is another code which is a comprehensive code in relation to this class is the C07D, which is under the CPC code. So, one can actually look at the patent data set from this as well.

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### Combination search Keyword and Classification

In the "Advanced search" interface of Espacenet to search for patents and introduce keywords and CPC symbols in the related fields.



Enter keywords  
Title:  CLASS AND/OR CLOC  
This is abstract:  IN  
Polyethylene Furanate or Polyethylene Furanate or PEF

Enter numbers with or without country code  
Publication number:  W020081422  
Application number:  DE2010112008  
Priority number:  W0199001805

Enter one or more dates or date ranges  
Publication date:  2014-12-31 or 2014-01-01

Enter name of one or more persons/organizations  
Applicant:  HELLER PATENT  
Inventor:  SMITH

Enter one or more classification numbers  
CPC:  F00D119  
IPC:  H01M1/02

So, for instance one can actually also home in into a specific database. Here we are looking at doing a search at the e space net using the advanced search option. So, in the advanced search option you can actually use multiple fields for carrying out search. So, here we are looking at a keyword, where we have defined the keyword as polyethylene furanoate or even PEF. And, then we using the CPC code of C07D the specific code out of that. And, then when we look at the search we are getting the hits in relation to the data set.

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Result list is displayed

Click here to open the patent front page

Inventor	Applicant	IPC Class	Publication info	Priority date
INVENTOR	APPLICANT	IPC CLASS	PUBLICATION INFO	PRIORITY DATE
INVENTOR	APPLICANT	IPC CLASS	PUBLICATION INFO	PRIORITY DATE
INVENTOR	APPLICANT	IPC CLASS	PUBLICATION INFO	PRIORITY DATE

When the results that come out of this database in this case there are only some results which are presented. So, this is the listing of the patents. Once we click on this particular patent, you get the data and the information in relation to that particular patent. And, since highlight highlighting option is available in the Espacenet one can actually right away in the search itself screen out the results by a mere look of the entire dataset.

So, let us imagine there is a display of 25 hits in one page, because of the highlighting option quickly one can actually select out the patents by screening out those which are not relevant. So, one can use this option of ticking off in this box. So, that that patent data set can be downloaded as the specific set of it is.

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# In-Depth Review of Selected Patents

- If the patent is relevant click In my patent list

The screenshot shows the USPTO patent search results page for the patent US2019023677 (A1). The patent title is "PRODUCTION OF PURIFIED DILKYL-FURAN-2,5-DICARBOXYLATE (DAFD) IN A RETROFITTED DMT PLANT". The page includes a description, a list of inventors, and a list of attorneys. A red box highlights the "In my patent list" button, which is used to add the patent to a user's list of patents.

Once you download that the selected patent list based on the screening of the data, you can actually bounce this information into your folder. So, you can create a my patents list under Espacenet and actually keep that into one folder. And, later on analyze it is possible that you may want to review this search and go in to other codes or even refine the keyword. So, those number of searches the results obtained out of those searches can be stored into this my patents list and that is how one can run the search by doing an in depth review of the patent data set

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[illegible]

And so, therefore, a review on a search conducting the search again helps you to actually check out and look for is it that you have missed out certain patent. So, ensuring that you have not missed out patents is more important, than have just having certain patents because any type of search will reveal some set of patents, but the question is do we have the adequate patents and the relevant patents for the data analysis.

So, keeping that in mind is important. So, what happens is when we retry the search one can actually put in more IPC codes that is wherever polyethylene furanoate this set of structures are relevant in relation to other IPCs or other CPCs. So, in this case you can see in this particular example where C codes have been placed and also B codes. So, we are asking the database to provide us the entire patent data set in relation to any of these particular CPC codes. So, it is a more in depth search of the data.

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The screenshot displays the Espacenet Patent search interface. At the top, there is a search bar and navigation tabs. Below the search bar, the 'Result list' section shows 13 results found in the Espacenet database. A red box highlights the 'Export' button. The results table lists patents with columns for IPC, Publication info, and Priority date. The first result is 'POLYETHYLENE FURANOATE' by APLA VERVE ALUMI, with IPC codes C08G001/00, C08G001/02, C08G001/04, C08G001/06, C08G001/08, C08G001/10, C08G001/12, C08G001/14, C08G001/16, C08G001/18, C08G001/20, C08G001/22, and C08G001/24. The second result is 'BLENDED AND METHOD FOR MANUFACTURING THE SAME' by APLA VERVE ALUMI, with IPC codes C08G001/00, C08G001/02, C08G001/04, C08G001/06, C08G001/08, C08G001/10, C08G001/12, C08G001/14, C08G001/16, C08G001/18, C08G001/20, C08G001/22, and C08G001/24. The third result is 'BIO-BASED POLYESTER AS WELL AS COPOLYMER METHOD AND APPLICATION THEREOF' by APLA VERVE ALUMI, with IPC codes C08G001/00, C08G001/02, C08G001/04, C08G001/06, C08G001/08, C08G001/10, C08G001/12, C08G001/14, C08G001/16, C08G001/18, C08G001/20, C08G001/22, and C08G001/24.

Once you get the information. So, in an earlier case we have got we got very few results, in this case when we have expanded the purview of the CPC code 13 results are presented. So, what do you do? You can actually select out as is shown in this particular in the illustration here. And, then download the information, one can export it in two different formats, which is available from the database and then do an analysis at a later time point. So, this is how the steps can be broken into different time points.

So, when you conduct a patent landscape search, it is done over a period of few days typically it would take anything between 15 days to one month to complete a patent



landscape search sometimes even longer. So, one can actually do the search part of it in some part of the time, since the exporting of data can happen the results the analysis of that can be done at a little later point of time.

So, giving it adequate time is the key for patent landscape. So, it is not good to hurry into making a landscape. Sometimes, after you prepare the landscape you also look at some new technologies that are developed keeping sight of that is also important. So, giving it adequate time helps you to not only understand the nuances of the technology understand the players in the field, what are the technologies captured by these players, the growth of the technology, it may be possible that you may want to review that at a little later time point. So, keep giving it that adequate time is important in relation to understanding a patent landscape the value of it.

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**Download of data for analysis**

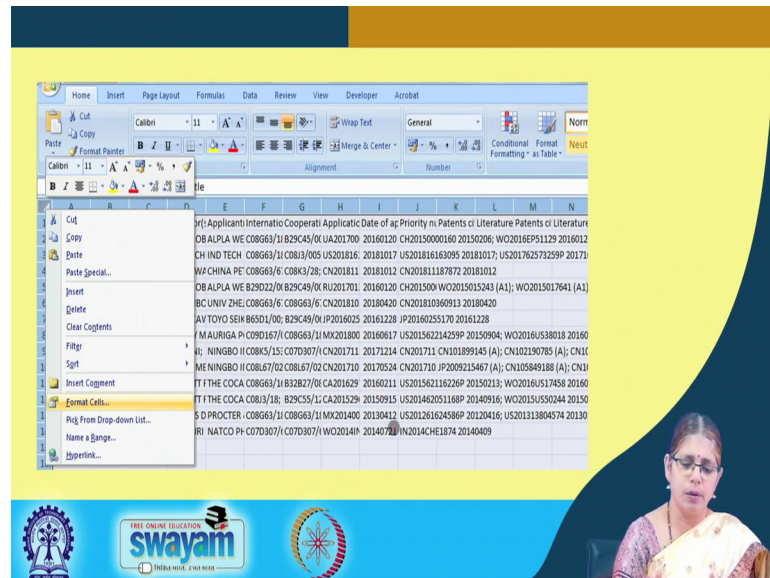
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Title	Publication	Inventor	Applicant	International Cooperative Patent Classification (IPC) code	Date of application	Priority date								
2	METHOD	UA119281	*****	SIEGL ROBL ALPLA WE	C08G63/11 B29C45/00	UA201700	20160120	CH20150000160	20150206	WO2016P51129	20160120				
3	BLENDED	US2019111	*****	LI SHU-CH IND TECH	C08G63/11 C08B3/00	US201816	20181017	US201816163095	20181017	US201762573259P	20171017				
4	Bio-based	CN109369	*****	SI HU; WU CHINA PE	C08G63/11 C08B3/28	CN201811	20181012	CN201811187872	20181012						
5	PREFORM	RU267590	*****	SIEGL ROBL ALPLA WE	B29D22/00 B29C49/00	RU201701	20160120	CH2015000	WO2015015243	(A1);	WO2015017641	(A1);	CN101895		
6	2,5-Furan	CN108659	*****	WU LINB'UNIV ZHE	C08G63/11 C08G63/06	CN201810	20180420	CN201810360913	20180420						
7	CONTAIN	JP2018104	*****	YOSHIKAV TOYO SEI	B65D1/00; B29C49/00	JP2018025	20161228	JP20160255170	20161228						
8	POLYMER	MX201800	*****	SANJAY MAURIGA PI	C09D167/00 C08G63/11	MX201800	20160617	US201562214259P	20150904	WO2016/038018	20160617				
9	PEF (poly	CN108047	*****	ZHAO NI; NINGBO II	C08K5/15; C07D307/00	CN201711	20171214	CN201711	CN101899145	(A);	CN102190785	(A);	CN104284931	(A)	
10	Method f	CN107216	*****	WANG ME NINGBO II	C08L67/02 C08L67/02	CN201710	20170524	CN201710	JP2009215467	(A);	CN105849188	(A);	CN105916575	(A)	
11	BARRIER	CA297549	*****	MOFFITT THE COCA	C08G63/11 B32B27/00	CA201629	20160211	US201562116226P	20150213	WO2016/0517458	20160211				
12	METHODS	CA296100	*****	MOFFITT THE COCA	C08B3/18; B29C55/11	CA201529	20150915	US201462051168P	20140916	WO2015/050244	20150915				
13	PLASTIC B	MX201401	*****	COLLAS D PROCTER	C08G63/11 C08G63/11	MX201400	20130412	US201261624586P	20120416	US2013/13804574	20130314	US201			
14	PROCESS I	WO20151	*****	KONDURI NATCO PH	C07D307/00 C07D307/00	WO201418	20140721	IN2014CHE1874	20140409						

So, here we have the downloading of the data, which is shown in this particular excel sheet, you have the entire information downloaded on that particular patent which means all the categories that are captured by the database are downloaded. You have in the very first row, you can see the different columns, the lining up of the title publication inventor information, applicant information, the international IPC code, G in here it represents the CPC code, the date of application so on and so forth.

So, this excel sheet columns can run into the entire set of information, which is captured as that particular field. So, all the fields that the database captured will be presented in

the excel sheet. So, this is actually the raw data that you are looking at. Now, it is at this stage you might decide on what are the columns that you would consider for the data analysis. If, you remember also in the earlier example when we discussed about 3 D printing, we looked at either by a single field you can draw the analysis, one can also draw it by multiple fields. So, from here is the starting of the data analysis.

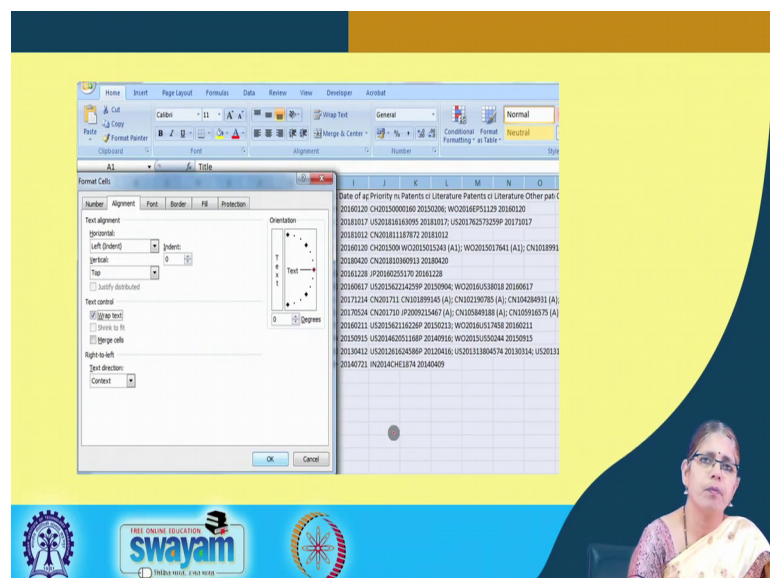
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The screenshot shows the Microsoft Excel interface. The 'File' menu is open, displaying options such as Cut, Copy, Paste, Paste Special, Insert, Delete, Clear Contents, Filter, Sort, Invert Contents, Format Cells, Pick From Drop-down List, Name a Range, and Hyperlink. The spreadsheet contains a table of patent data. Column A lists patent identifiers and titles, while columns B through N contain numerical data. The interface includes the standard Excel ribbon with tabs for Home, Insert, Page Layout, Formulas, Data, Review, View, Developer, and Acrobat.

Based on one can also actually format the cells, so that you know you have the spread of data which is presented in a more easier way to work with the data.

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This screenshot shows the 'Format Cells' dialog box in Microsoft Excel. The 'Number' tab is active, displaying settings for text alignment (Horizontal, Vertical, Justify), text control (Wrap text, Shrink to fit, Merge cells), and text direction (Text to left, Text direction). The background spreadsheet is visible, showing the same patent data table as in the previous slide. The Excel ribbon and interface elements are consistent with the previous image.

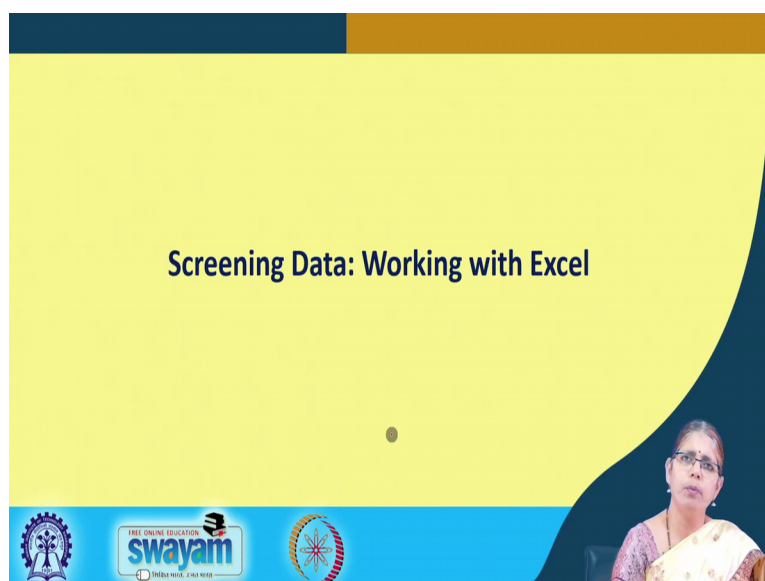
And, this is where one is looking at organizing the information; so that is the first step.

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Title	Publication number	Publication date	Inventor(s)	Applicant(s)	International classification	Cooperative Patent Classification Application
METHOD FOR PRODUCING THIN FILLED SMALL PLASTIC PARTS AND THIN FILLED SMALL PLASTIC PARTS	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)
BLIND AND METHODS FOR MANUFACTURING THE SAME	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)
Bio-based polyester, as well as preparation method and application thereof	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)
PROCESS FOR MANUFACTURE OF POLYESTER(A)	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)
METHOD FOR MANUFACTURE OF PREFORM AND PLASTIC CONTAINER MADE FROM POLYESTER(A)	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)
CONTAINER AND PRODUCING METHOD THEREOF	US20100123000 (A2)	27-05-2010	SEOL ROBERTSON (AT)	ALPHA WIRELESS COMMUNICATIONS INC. (US)	C08K9/10, C08K9/12, C08K9/14, C08K9/16, C08K9/18, C08K9/20, C08K9/22, C08K9/24, C08K9/26, C08K9/28, C08K9/30, C08K9/32, C08K9/34, C08K9/36, C08K9/38, C08K9/40, C08K9/42, C08K9/44, C08K9/46, C08K9/48, C08K9/50, C08K9/52, C08K9/54, C08K9/56, C08K9/58, C08K9/60, C08K9/62, C08K9/64, C08K9/66, C08K9/68, C08K9/70, C08K9/72, C08K9/74, C08K9/76, C08K9/78, C08K9/80, C08K9/82, C08K9/84, C08K9/86, C08K9/88, C08K9/90, C08K9/92, C08K9/94, C08K9/96, C08K9/98, C08K9/100	US20100123000 (A2)

Once you see the data spread, where you are able to see the from the raw data to a little bit of an enhanced view based on the formatting. It is giving you information which you can actually go through in a glance and it is from here that you can now look at the analysis of the data.

(Refer Slide Time: 19:03)

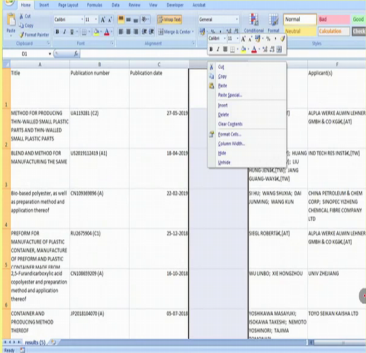





So, the simple way of looking at organizing the data and the analysis of data can be done on your desktop or your personal computer using excel. So, let us understand how to screen the data using excel.

(Refer Slide Time: 19:25)

## Screening Date




- Insert a column next to date field by right click
- Click Insert



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SWAMYAM NIKETAN, CHENNAI



There are different ways in which you can screen the data by using the filter option, where you are looking at the date field. So, you select the date field and then right click and then you can actually insert the value. So, the start period of the data from where it is going to be analyzed will be shown up. So, that data set comes up in relation to that particular date.

(Refer Slide Time: 19:56)

## Screening Date

- Go to Data
- Text to Column
- Fixed width
- Next
- Create a breakline before year
- Next
- Finish

And, here is that representation of that way you are looking at the publication date. So, using excel one can actually organize based on specific fields and therefore, also screen out the data based on specific categories.

(Refer Slide Time: 20:19)

## Screening Date

- Year is separated from date
- Copy year field and paste in another excel sheet

Now, here you have the data represented based on the publication date, based on this we can actually look at the year wise computation of the information. So, from this raw data sheet you can actually open up another sheet where you can actually copy in this information into a column. So, all the relevant columns whichever are the ones that you

are comparing as data analytical points can be copied into another excel sheet. And, then one can actually look at for making the charts or the pie diagrams.

(Refer Slide Time: 21:01)

So, here is a simple aspect of copying that year information, so into one column.

(Refer Slide Time: 21:12)

And, then we are also looking at multiple fields. So, one can actually take the applicant information by selecting out the specific column for the applicant. So, the entire applicant information will be ported into a separate one.

(Refer Slide Time: 21:29)

Remove unnecessary text manually

What happens then? It is also possible that there are hits which are not relevant. So, manually also one can screen through and a data set which is representing something within which is a micro level, which is less than 1000 or around 1000 or patents can be easily looked through from a manual screening of the information. So, that those that aspect of it can be removed.

(Refer Slide Time: 22:05)

Use Find and Remove unnecessary text

Excel has this find and remove options. So, wherever you see that there is some data which is actually not correctly represented, one can select and remove that information and this is one representation of that in relation to an applicant.

(Refer Slide Time: 22:25)

After screening the Applicant field  
•Select the Applicant Field  
•Copy and Paste in another sheet

Title	Publication number	Publication date	Inventor(s)	Applicant(s)	International classification
METHOD FOR PRODUCING THIN WALLED SMALL PLASTIC PARTS AND THIN WALLED SMALL PLASTIC PARTS	US112021 (C2)	27-05-	2019 SHEL ROBERTS(JAT)	ALPHA WERKE ALWIN LERNER BIRN & CO	C08G0017; C08G0017; B29K2070; B29K2070; B29K2070; B29K2070
BLENDED METHOD FOR MANUFACTURING THE SAME	US112021 (A2)	18-06-	2019 LI SHU-CHEN(JAT); HUANG CHENG-JUN(JAT); LIU HONG-JEN(JAT); JANG GUANG-WANG(JAT)	IND TECH RES INST	C08G0017; C08G0017; C08G0017; C08G0017
Bio-based polyester, as well as preparation method and application thereof	CN10888888 (A)	22-02-	2019 SHI HAO; WANG SHURUI; DAI JUNMING; WANG KUN	CHINA PETROLEUM & CHEM CORP; SHANGHAI TONGSHI CHEMICAL FIBRE COMPANY LTD	C08G0017; C08G0017; C08G0017; C08G0017
PREFORM FOR MANUFACTURE OF PLASTIC CONTAINER, MANUFACTURE OF PREFORM AND PLASTIC CONTAINER MANUFACTURE	RU2679084 (C2)	25-12-	2018 SHEL ROBERTS(JAT)	ALPHA WERKE ALWIN LERNER BIRN & CO	B29K2070; B29K2070; B29K2070; B29K2070
2,5-Furandicarboxylic acid copolymer and preparation method and application thereof	CN10888888 (A)	18-05-	2018 WU LINGBO; XIE HONGZHEN	JINXI ZHONGJIANG	C08G0017; C08G0017; C08G0017; C08G0017
CONTAINER AND MANUFACTURING METHOD THEREOF	JP2018040670 (A)	05-05-	2018 YOSHIMASA MASATOSHI; YOSHIMASA MASATOSHI; YOSHIMASA MASATOSHI	TOYO SODA KASEI LTD	B29K2070; B29K2070; B29K2070; B29K2070

What happens is individually one can select out these particular fields. So, that from the raw data sheet, you are making your individual excel sheets in relation to what you want to compare. So, the entire workbook the excel workbook may represent several sheets where you are doing the comparisons. And, this is how one can use excel spreadsheet to do a very simple data analysis. So, you have also copied the not only the year also the applicant information in this case.



(Refer Slide Time: 23:00)

Similarly screening for Inventor

Applicant	Inventor
2019 ALFA WIRE ALUMINUM (SHANGHAI) CO	
2019 FID TECH RES	
2019 CHINA PETROLEUM & CHEM CORP, SINOPEC YONGHONG	
2019 ALFA WIRE ALUMINUM (SHANGHAI) CO	
2019 UNIV ZHEJIANG	
2018 TOYO DENKA KASEI LTD	
2018 ALUMINA POLYMERS INC	
2017 NINGBO INST MATERIALS TECH & ENG GAS	
2018 THE COCA-COLA COMPANY	
2018 THE COCA-COLA COMPANY, GEORGIA TECHES INST	
2013 PROCTOR & GAMBLE	
2013 NALCO PHARM LTD	

(Refer Slide Time: 23:08)

Similarly screening for Inventor

Publication number	Public	Inventor	Applicant	International classification
2019 ALFA WIRE ALUMINUM (SHANGHAI) CO				
2019 FID TECH RES				
2019 CHINA PETROLEUM & CHEM CORP, SINOPEC YONGHONG				
2019 ALFA WIRE ALUMINUM (SHANGHAI) CO				
2019 UNIV ZHEJIANG				
2018 TOYO DENKA KASEI LTD				
2018 ALUMINA POLYMERS INC				
2017 NINGBO INST MATERIALS TECH & ENG GAS				
2018 THE COCA-COLA COMPANY				
2018 THE COCA-COLA COMPANY, GEORGIA TECHES INST				
2013 PROCTOR & GAMBLE				
2013 NALCO PHARM LTD				

And, then so on and so forth one can also copy the inventor information. So, here there are lot of inventors in relation to different applications. So, inventor information can also be captured.

(Refer Slide Time: 23:23)

After screening the Inventor field

- Select the Inventor Field
- Copy and Paste in another sheet

So, this way one can add columns separate columns into the individual sheet, which is part of the excel workbook and then draw the analysis parts.

(Refer Slide Time: 23:41)

Priority Numbers or Family Numbers

Insert column

- Take first two letters from priority number Ex: US, EP, IN for Country of filing
- Insert column
- Copy in inserted column

In the earlier instance we have looked at the data in relation to inventor's assignees, priority or priority number is another aspect which can be caught which can be also captured so, information in relation to priority number and country. So, one understands based on that how the spread of the data is. So, this information also can be captured.

(Refer Slide Time: 24:15)

Select and copy in another sheet

Country codes; so understanding the country codes is important based on the representation of each country.

(Refer Slide Time: 24:32)

Select and copy in another sheet

So, one can select out this information as well and actually; so a whole lot of these columns can be arranged. So, before we look at the analysis of data, the organization of data is important we discussed about that in the earlier lecture.



(Refer Slide Time: 25:10)

Now, comes the aspect of data visualization. So, here we have the columns placed one next to the other, but how does the data look with respect to the fields of this information. So, what is the correlative information that we can understand? And, this is where one can create pivot tables by selecting out the column and creating the pivot tables.

So, here in this case one can use the excel option of selecting the column. And, then one can insert here in this case we are saying insert with respect to creating a pivot table or even one can create a other options are also available in relation to the data set.

(Refer Slide Time: 26:06)

The screenshot shows the Microsoft Excel interface with the 'PivotTable Field List' task pane open. The 'Count of Year' table is selected. The 'PivotTable Field List' pane on the right shows the 'Choose fields to add to report' section with 'Year', 'Country Code', and 'Applicant(s)' checked. The 'Applicant(s)' field is highlighted with a red box and a red checkmark.

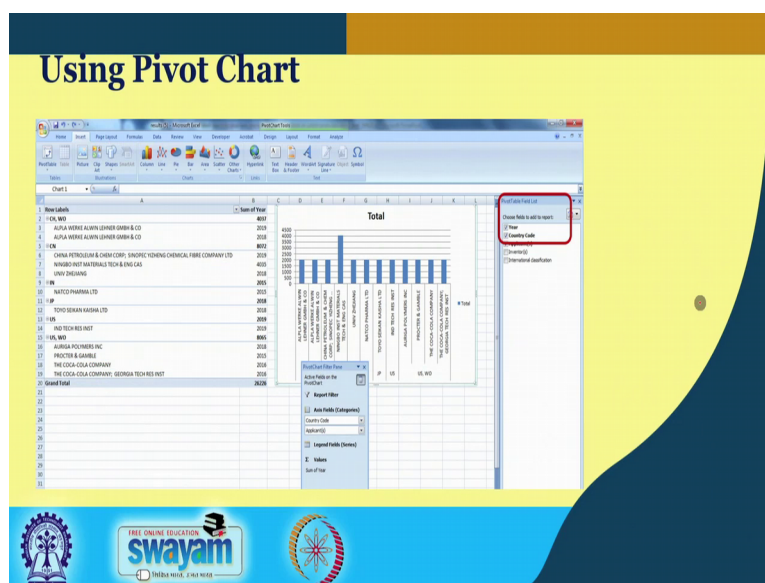
So, this is where the option of choosing the fields comes up. Since, we have already organized the information in that different columns, here one can now select out the specific categories that you would like to for creation of the table. In one instance here we are looking at the aspect of year country code and applicant. This information is what we are interested that the table should represent.

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The screenshot shows the Microsoft Excel interface with the 'Using Pivot Chart' slide. The 'PivotChart' button is highlighted in the ribbon. The 'Count of Year' table is visible in the background.

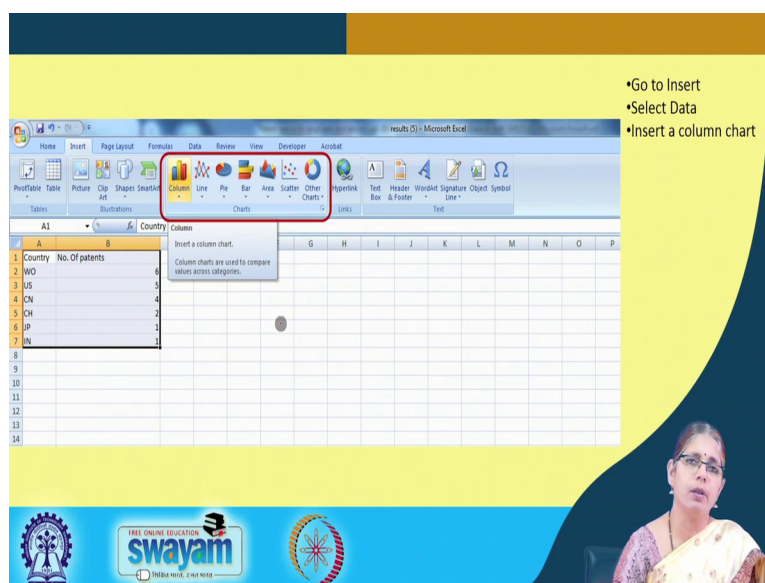
And, you call for click and insert pivot chart and that is where you get the information in relation to.

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So, here what you see is on one end you have the data and the here you have the chart come up, where you have the information in relation to the patent numbers also the assigning information. So, this is how one can draw a number of pivot charts based on the selected columns, and one can actually add relevantly other columns as well. So, this is where you have the option on in excel. Now, one can also further filter based on specific aspects like you can have you can report specific filters under the under the same option available here. So, this is how one can create.

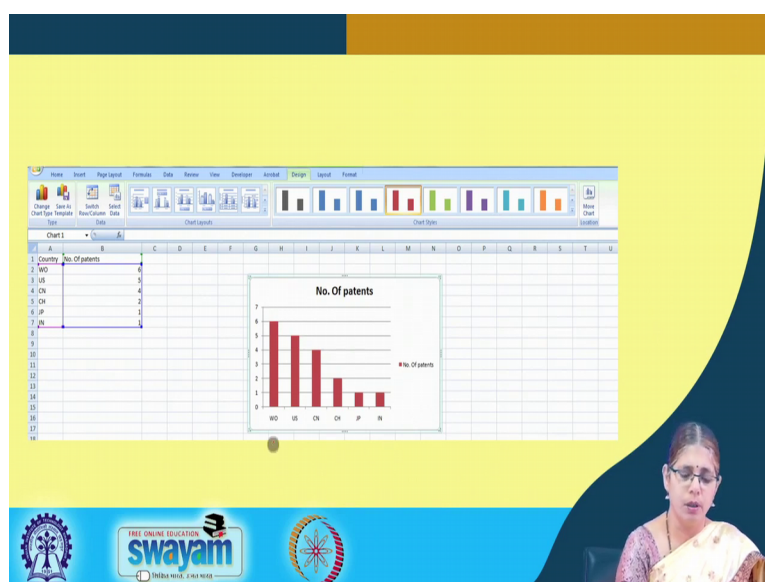
(Refer Slide Time: 27:42)



And, all the menu in the option that is available in excel, there are different ways in which you can actually now do the data analysis. By inserting a column chart, drawing a pie chart, having a bar diagram, looking at the area under the curve into of the patent under the particular area, you can have a scatter plot and then there are other ways in which one can organize the information.

So, identifying what is the relevant type of data analysis that you would like to do depends on, how you would like to see the information change with respect to the data. So, one can select out a pie chart where you are looking at percentage representation. So, that is how one can use excel as a good option to create these different plots.

(Refer Slide Time: 28:45)



So, here you see a simple way of creating a chart a bar diagram with respect to the PCT publications that represent the area, US publication, China publications and so, that is how you can actually draw these particular charts.

(Refer Slide Time: 29:07)

## Analyze the Data with PATENTSCOPE

Results 1,380 of 2,422 for Criteria:FP ("radio frequency identification" or RFID) AND container\*) Official(s):All Language,EN Stemming: true

Refine Search: FP ("radio frequency identification" or RFID) AND container\*)

Sort by: Pub Date Desc View: All List Length: 10 Machine translation

Click here

IntClass	Appl.No	Title	Applicant	Cr	PubDate
1. WO/2019/117928	4618 173216	INTERCHANGEABLE LABELLING PLATE	AESCULAR INC	WO	2019-06-20
The present invention substantially refers to a labelling system comprising a labelling plate being adapted to be removable connected with a sterile container wherein the labelling plate comprises interfaces for at least one (barcode) label and at least one (RFID) identification tag, wherein the interfaces are designed for removable holding the at least one tag and/or the at least one label at the separate labelling plate.					
2. 3403009	801L 3100	SYSTEM AND APPARATUS FOR AUDITING BIOLOGICAL SAMPLES IN COLD STORAGE	KUSTODIAN LTD	EP	2019-06-12
A system for the remote live auditing of biological samples contained in a cold storage vessel (10). The vessel (10) comprises one or more containers (100(1), 100(2)), each of which comprises a connector (102(1), 102(2)) and is configured to hold at least one (100(1), 100(2)) each of which contains one or more biological samples and has associated therewith an (RFID) tag identifying the (100(1), 100(2)) in question. The system further comprises a docking assembly (200) mounted on the vessel (10) and comprising a plurality of connectors (202), each of which is configured to engage with the connector (102(1), 102(2)) of one of said containers (100(1), 100(2)), thereby providing an electrical connection between the docking assembly (200) and the container (50) in question. Each container (100(1), 100(2)) is operable to wirelessly interrogate the (RFID) tags of the (100(1), 100(2)) held therein, to receive information identifying the (100(1), 100(2)) as a result of the interrogation, and to communicate this identifying information to the docking assembly (200) via the electrical connection. Also disclosed are a container and a docking assembly suitable for use in the system.					
3. 20190172331	G00B 1324	MOBILE STORAGE, TRACKING AND SECURITY SYSTEM AND METHOD THEREOF	J&S System Solutions LLC	US	2019-06-06
A portable asset dispensing device includes a (100) configured to be moved to a plurality of locations, an interior and an end. A door is positioned at the end of the (100) and includes a locking mechanism. A security access device is disposed at the end and configured to accept access information, and a controller controls access into the (100) and tracks a plurality of items within the interior of the (100). The device includes a plurality of (100) readers (100) configured to detect (100) tags located on the plurality of items within the interior of the (100). The plurality of (100) readers being configured to detect (100) tags located on the plurality of items within the interior of the (100).					

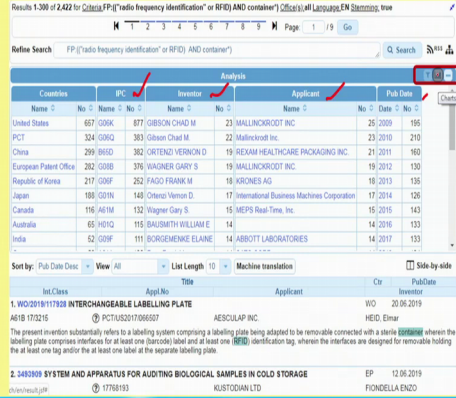
One can go back to other databases and also look at some of these options. So, while in the first instance we took out the information from on the patent, we searched the information at e space net, collected the patent data set, filtered the patent data set, and then used excel as an option to do the data analysis. In the case of the WIPO offers a database called the patent scope which also has this option of analytical tools which are part of the patent scope itself.

So, here there is a link at the patent scope which says analysis, if you click on this particular link you go to the different analytical tools available under the patent scope to do the analysis of the data. And, this is how once you get the number of hits you can select using the option of ticking in the box, those patents one can look for the analysis.



(Refer Slide Time: 30:16)

## Analyze the Data with PATENTSCOPE



Results 1,308 of 2,422 for Criteria:FP(“radio frequency identification” or RFID) AND container”) Official Language:EN Stemming: true

Refine Search: FP(“radio frequency identification” or RFID) AND container”) [Q Search] [Advanced Search]

Analysis: [Graphs] [Table] [List] [Map]

Country	IPC	Inventor	Applicant	Pub Date
United States	657 020K	877 GIBSON CHAD M	23 HALLINCKRODT INC	25 2009 186
PCT	324 020G2	363 Gibson Chad M	23 Hallinckrodt Inc	23 2010 210
China	299 961D	362 ORTENZIO VERNON D	19 REXAM HEALTHCARE PACKAGING INC	21 2011 160
European Patent Office	262 020B	376 WAGNER GARY S	19 HALLINCKRODT INC	19 2012 130
Republic of Korea	217 020F	252 PASO FRANK M	18 IKRONES AG	18 2013 136
Japan	188 020N	148 Ortenzio Vernon D	17 International Business Machines Corporation	17 2014 126
Canada	116 A61M	132 Wagner Gary S	15 MEPS Real Time, Inc.	15 2015 143
Australia	65 110H2	115 DAUBMITH WILLIAM E	14	14 2016 133
India	52 020F	111 BORGEMENKE ELANE	14 ABBOTT LABORATORIES	14 2017 133

Sort by: Pub Date Desc | View: All | List Length: 10 | Machine translation: [On] | Side by side: [On]

1. WO/2019/117828 INTERCHANGEABLE LABELLING PLATE  
A61B 17/0215  
PCT/US2017/066507  
AESCULAP INC  
HEID, Elmar  
The present invention substantially refers to a labelling system comprising a labelling plate having adapted to be removable connected with a sterile [REDACTED] wherein the labelling plate comprises interfaces for at least one barcode label and at least one [REDACTED] identification tag, wherein the interfaces are designed for removable holding the at least one tag and/or the at least one label at the separate labelling plate.

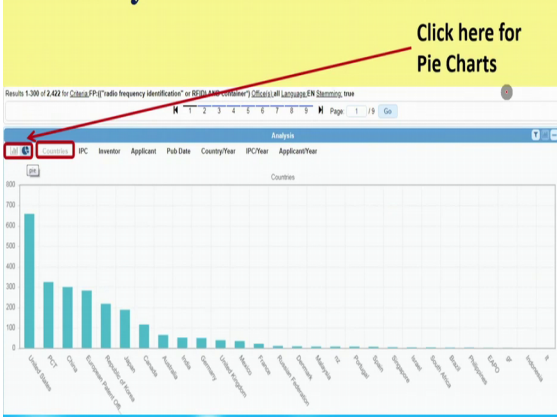
2. 3463989 SYSTEM AND APPARATUS FOR AUDITING BIOLOGICAL SAMPLES IN COLD STORAGE  
A61B 17/0215  
PCT/US2017/066507  
KURSTODIAN LTD  
FIONDELLA ENZO  
The present invention substantially refers to a labelling system comprising a labelling plate having adapted to be removable connected with a sterile [REDACTED] wherein the labelling plate comprises interfaces for at least one barcode label and at least one [REDACTED] identification tag, wherein the interfaces are designed for removable holding the at least one tag and/or the at least one label at the separate labelling plate.

Click here for Graphical format

And, this is how one can actually see the columns, which are organized under the patent scope by a way of selecting out the analysis option. So, here you have the country information, IPC information, inventor, applicant, publication rate and so on and so forth. Once, you click on the graphical format you can actually get the organization of that data in relation to a visualize visualization mode.

(Refer Slide Time: 30:55)

## Analyze the Data with PATENTSCOPE



Results 1,308 of 2,422 for Criteria:FP(“radio frequency identification” or RFID) AND container”) Official Language:EN Stemming: true

Refine Search: FP(“radio frequency identification” or RFID) AND container”) [Q Search] [Advanced Search]

Analysis: [Graphs] [Table] [List] [Map]

Click here for Pie Charts

Bar Chart: Countries

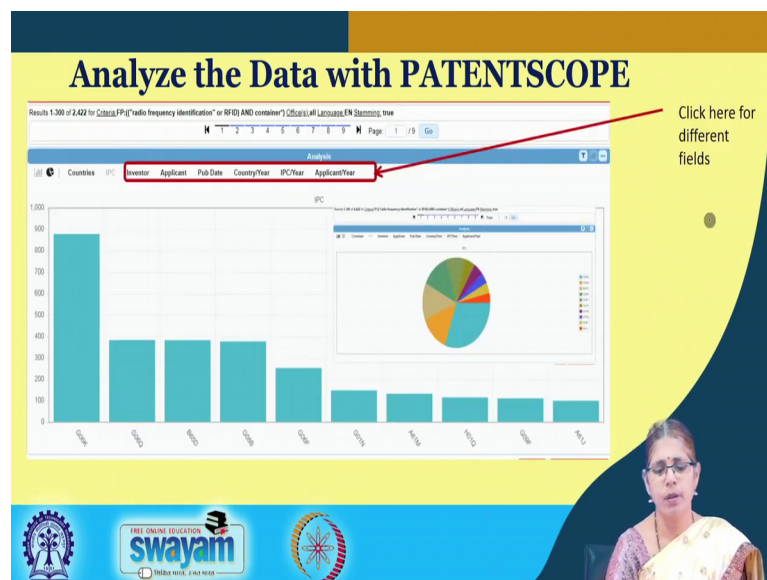
1. WO/2019/117828 INTERCHANGEABLE LABELLING PLATE  
A61B 17/0215  
PCT/US2017/066507  
AESCULAP INC  
HEID, Elmar  
The present invention substantially refers to a labelling system comprising a labelling plate having adapted to be removable connected with a sterile [REDACTED] wherein the labelling plate comprises interfaces for at least one barcode label and at least one [REDACTED] identification tag, wherein the interfaces are designed for removable holding the at least one tag and/or the at least one label at the separate labelling plate.

2. 3463989 SYSTEM AND APPARATUS FOR AUDITING BIOLOGICAL SAMPLES IN COLD STORAGE  
A61B 17/0215  
PCT/US2017/066507  
KURSTODIAN LTD  
FIONDELLA ENZO  
The present invention substantially refers to a labelling system comprising a labelling plate having adapted to be removable connected with a sterile [REDACTED] wherein the labelling plate comprises interfaces for at least one barcode label and at least one [REDACTED] identification tag, wherein the interfaces are designed for removable holding the at least one tag and/or the at least one label at the separate labelling plate.

So, here in this case we clicked on the let us say the pie chart. So, you will have the data shown up in the form of a pie chart. In another case you are looking at a bar diagram. So,

patent scope offers this way of analyzing the data using, the visualization tools that it provides under the database.

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And. So, one can actually also look at it from the point of view of using different fields for the information that you want to see and using the visualization tool. So, in summary what is it that we have learned today from this hands on the patent landscape?

(Refer Slide Time: 31:43)

- Understanding the technology, developments and applications in relation to the technology is the key step in preparing patent landscapes
- Identifying the keyword and IPCs for search of patent data set
- Keeping in touch with new developments in the technology necessary for an inclusive approach
- Review of the patent data set is a critical step before proceeding with data analysis
- Data analysis can be done based on a broad/narrow landscape

Depending on the area whether it is mechanical or chemical understanding the technology, the developments and applications in relation to the technology is a key step

in preparing patent landscapes. One needs to keep in mind the keyword and the IPC course, the relevance of doing an in depth search in relation to patent landscapes. Identifying the right type of search methodology, defining the database time limits.

Review is a very important and critical step for collecting the patent dataset. There are a host of data visualization tools that are available as a part of free databases also Microsoft Excel provides a great opportunity to look at the analysis with respect to the different data points that are there in relation to the patent landscape search. It is also important to revisit the patent landscape depending on the growth of the technology.

So, inclusion of new technology areas may be necessary before you present the landscape report either as a part of research or even as a part of submitting that so, that a business can. So, that business can take decisions so, the value of patent landscape search can come in different ways. From the point of view of providing clear insights into particular areas as a patent searcher there are certain best practices that you need to keep in mind when the patent landscape is done, it is important to have a date stamp.

So, clearly mentioning the data time point is important, because it is possible that few months down the line, if you are looking at the same patent the landscape, it may mean different things understanding these standards in relation to a technology is important, because incorrect representation will mean that the landscape will have the value which is not realized from the point of view of the lack of objectivity in cataloging the information.

So, understanding the technical terms understanding the way the keywords are represented in the technology these are very important. So, a patent landscape is actually more like conducting research in a given area. And so, therefore, takes some amount of time and given that scenario the nuances of patent search that we have learnt must be kept in mind, because patent landscape search is one aspect of the type of patent searches

Thank you.