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Freedom to Operate

Sample Report



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INTRODUCTION

This document will include a Freedom to Operate work sample as provided by Novocus Legal LLP.

OBJECTIVE

- A freedom-to-operate search was conducted in US and European jurisdictions to identify relevant search results related to biofuels.
- The search was concentrated on identifying processes that disclose the key features
 of the given product (listed in worksheet titled 'Key Features.'). 12 relevant results
 (4 patent families) were identified to be relevant to the scope of the project.

METHODOLOGY

The methodology adopted for this search involved the following set of activities:

- 1. A complete understanding of the technology and the scope of the search was developed. The key features of the given product were determined for the purpose of analysis.
- 2. A set of exemplary keywords and key strings for conducting the patent search were developed. These keystrings and the search logic have been provided in the worksheet titled 'Key Strings.' These key strings were finalized in collaboration with the client.
- 3. The keystrings highlighted in 'grey' in the table of key strings (key strings 7 and 9) were finally used to conduct the search on the selected database and obtain sets of results relevant to the chosen subject of study.
- 4. As a next step, the set of results from the above key strings were analyzed in two phases. In Phase I, the results were analyzed on the basis of their title and abstract to identify 20 potentially relevant results for the given technology or domain. In Phase II, the potentially relevant results identified during Phase I were analyzed in detail (for claimed matter) to identify seven relevant results.
- 5. Based on the above analysis, the key features of the given technology and the claimed matter in the identified seven relevant patents/published applications were mapped and are presented in the sheet titled 'Search Results Analysis.' For this purpose, excerpts from the claimed matter in the identified results were quoted against each phrase or key feature of the product. Further, the text of specific phrases and/or sentences in the excerpts was color coded to illustrate overlap with the corresponding portion of the key feature.
- 6. Bibliographic details (patent/publication number, title, abstract, first independent claim, assignee(s), inventors(s), IPC codes, publication date, filing date, legal status, and family

members) for these relevant results are presented in the sheet titled 'Search Results - Bibliography.'

SEARCH ASSUMPTIONS

- 1. All searches were conducted for live patents in USPTO and EPO in the following patent databases: Delphion, USPTO, and Espacenet. For this purpose, the maintenance status restriction 'No E code' in Delphion was used to limit the search results. In addition, legal status for each identified relevant result was obtained through USPTO and 'Register Plus' of EPO. This information is presented with the bibliographic information.
- 2. USPTO and Espacenet databases have certain search restrictions (e.g., advanced search on Espacenet is restricted to title and abstract only). Therefore, the results from these databases will only be used to validate the search results obtained from Delphion.
- 3. The scope of the search was limited to US and European jurisdictions only.
- 4. Only English language documents were analyzed.
- 5. The analysis for patent publications was based on their title, abstract, and claims.
- 6. All the search results correspond to the date of conducting the searches.

Any other database or assumptions relevant to the scope of the project will be presented here.

KEY FEATURES

-	oduct key features used ted below for reference:	for creating the analysis chart have been				
S. No.	Technology Key Features	Definitions				
1	Feedstock	The feedstock used for the process consists of a 'nonfood, lignocellulosic, and solid biomass. Examples of lignin material can include agricultural lignin, wood lignin, lignin derived from municipal waste, Kraft lignin, organosolve lignin, and combinations thereof.				
2	Process	The process used is catalytic or catalyst be or pyrolysis or liquefaction or deoxygenate upgradation of the feedstock for preparat	ion or			
	< <any key<br="" other="">features of the clients'</any>	This section will list the key features of the technology and their definitions to establish the scope and understanding of the project request.				

product will be listed here>>

KEY STRINGS

The table given below indicates the search strings and the number of results for each of the given databases and the search logic:

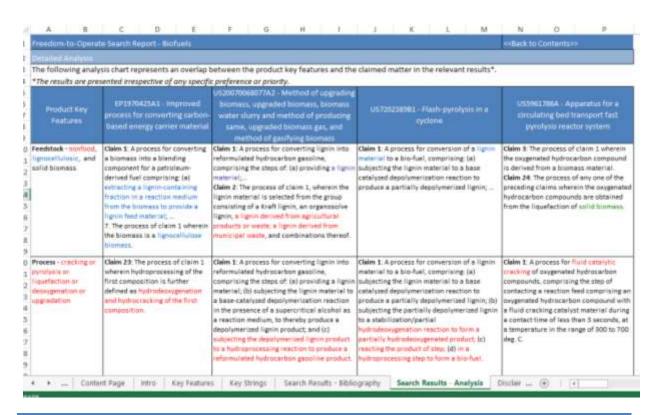
S. No.	Database	Sparch Strings	No. of
	Database	Search Strings	Results
Biomass + Biofuels			
1	Delphion	((biomass or bio-mass or "bio mass") and (biocrude* or bio-crude* or "bio crude" or bio-oil* or "bio oil" or bio-liquid* or "bio liquid" or bioliquid* or "pyrolysis oil" or "third generation biofuel" or "thirdgeneration biofuel" or biofuel* or "advanced fuel*" or fuel or gas))	17,452
Biomass + Biofuels + Catalytic Cracking 2	Delphion	((biomass or bio-mass or "bio mass") and (biocrude* or bio-crude* or "bio crude" or bio-oil* or "bio oil" or bioliquid* or "bio liquid" or bioliquid* or "pyrolysis oil" or "third generation biofuel" or "third-generation biofuel" or "advanced fuel*" or fuel or gas) and (catalytic or catalyst) and (crack* or pyrolysis or liquef*or upgrad* or deoxygenat*))	2,086
Biomass + Biofuels + Catalytic Cracking			
11	USPTO	spec/(biomass or bio- mass) and (catalyst or catalytic) and (biofuel or biooil or biocrude) and	39

		(crack* or pyrolysis) <in> (issued patents and published applications)</in>	
12	USPTO	Spec/(biomass) and (lignocellulose or cellulosic or wood or cellulose) and (fuel or biofuel or biooil or gas or bioliquid) and (catalyst or catalytic) and (cracking or pyrolysis) <in> (issued patents and published applications)</in>	629
13	Espacenet	Title or Abstract/ (biomass) and (biofuel or biocrude or biooil or bioliquid or fuel) and (catalyst or catalytic) and (cracking or pyrolysis)	17
14		< <any and="" be="" combinations="" here="" key="" listed="" other="" strings="" used="" will="">></any>	

SEARCH RESULTS - BIBLIOGRAPHY

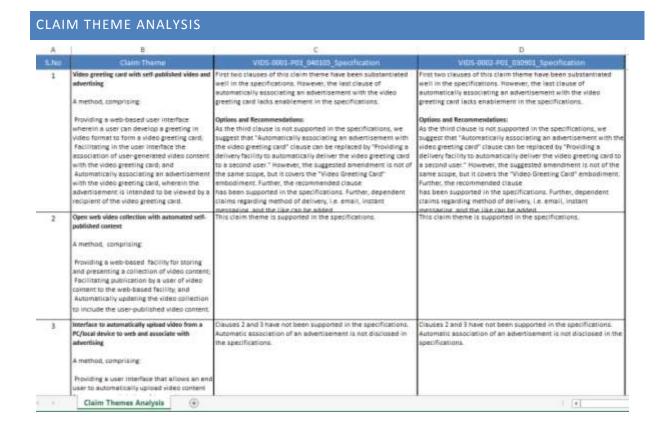
A	. 8	C	D	ŧ		0	H	- 1	- 1	К.	1.	M	N
		to Operate Search	Haport - Hiot										Mack to Contant
	111	esults - Shillow sph											
The	follo	swing 12 results (arr	anged in & nat	ant famili	es) were id	ientified.	The bibline	ranhic detai	Is for these i	s provided b	elow Plac	sse click on	the patent/publication
													and the patent families.
							Bib	lography					
Fam Hy No.	S No	Patent/Publication	77050	Abstract	Assignee (x)	Inventor (1)	Publicatio n Date	Priority Date	Application date	Application 19 No.	(PCN Codes	Family	LegalStatus
1	1	EP1970425A1	(reproved process for	A catalytic process is		O'CONNO	17-09-2006	20-02-2007	20-02-2007	EP2007102 737A	C10G0001 00,	EP1853490 Alj	2008-06-17 AK DESIGNATED CONTRACTING STATES: + EP
1	2	EP1852#90A1	D. S. S. L. L. L. V. S. S. L. S. S.	Disclined is a	BIOECON INTERNAT	O'CONNO B PAUL	07-11-2007	05-05-2006	05-05-2006	EP2006115 545A	C1080053 00,	EP3853490 A1	2008-09-10 17Q FIRST EXAMINATION REPORT + 2008
1		EP1852491AL	Mild pyrolysis of carbon-	Disclosed is a	BIOECUN INTERNAT	O CONNO	07-11-2007	05-05-2006	05-05-2006	EP2006113 567A	C1080053 00,	EP1852490 A1	2008-12-08 180 DEEMED TO 8 WITHDRAWN - 2008-05-08
2	4	U520070068077A2	Method of upgrading	this method of	ELECTRIC	SURAMA CHIART I	29-03-2007	2002-08-12) 2002-11-	22-08-2005	US2005523 7498	00' 80460003	JF20051793 79A_	2008-02-21 AS ASSIGNMENT A CORPORATION, JAPAN
2	5	U520060112638A1	Method of modifying	This method of	TOKYO ELECTRIC	SUYAMA CHIAKI I	01-06-2006	2002-08-09 [2002-11-	22-08-2005	US2005528 749A	82990003 00,	JP20051793 79A_ [2006-02-23 AS ASSIGNMENT TOKYO ELECTRIC POWER
2	4	US746584482	Method of upgrading	This method of		SUYAMA ORAE	16-12-2008	2002-08-12 1 2002-11-	22-06-2005	US2005529 749A	80980003 00,	JP20051793 79A_	2006-02-21 AS ASSIGNMENT N CORPORATION, JAPAN
1	,	US720238981	Plash- pyrolysis in a	A process for the	TMO	BREM GERRIT	10-04-2007	16-09-2002	11-11-1999	US1999129 785A	CU7C0004 00;	AT257170F_	NA.
2		EP111588661	Plash- syrolysis in a	The invention	NL ORGANISA	BREM GERRIT	02-01-2004	11-11-1999	11-11-1999	EF1999974 168A	80100046 24.	AT257370T_	2008-10-31 PGPP POSTGRANT ANNUAL FEES PAID TO NATION
3	9	EP1225886A1	Flash- pyrofysis in a	The invention	TNO	BREM GERRIT	04-09-2002	11-11-1999	11-11-1999	EF1999974 188A	BC100048 34:	47237170t	2008-10-31 PGFP POSTGRANT. ANNUAL PEES PAID TO NATIONAL

DETAILED ANALYSIS



CLAIM REFERENCE MAPPING WITH INVENTION KEY FEATURES





PROJECT ORGANIZATION

Novocus proposes the following protocol to facilitate smooth and timely completion of the project:

- A single person contact, appointed on behalf of Novocus, will communicate with the
 Client and will be responsible for the deliverables.
- A Client-appointed nominee will interact with Novocus for all project-specific discussions.
- The project will be considered complete when it is concluded and delivered by Novocus to the Client's satisfaction, along with all supporting documentation.

We request you to please contact the undersigned in case of any queries related to innovation maps and spill-overs or Intellectual Property in general.

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