

Patent Tracker

**Patenting trends in Algae based
Biofuels**

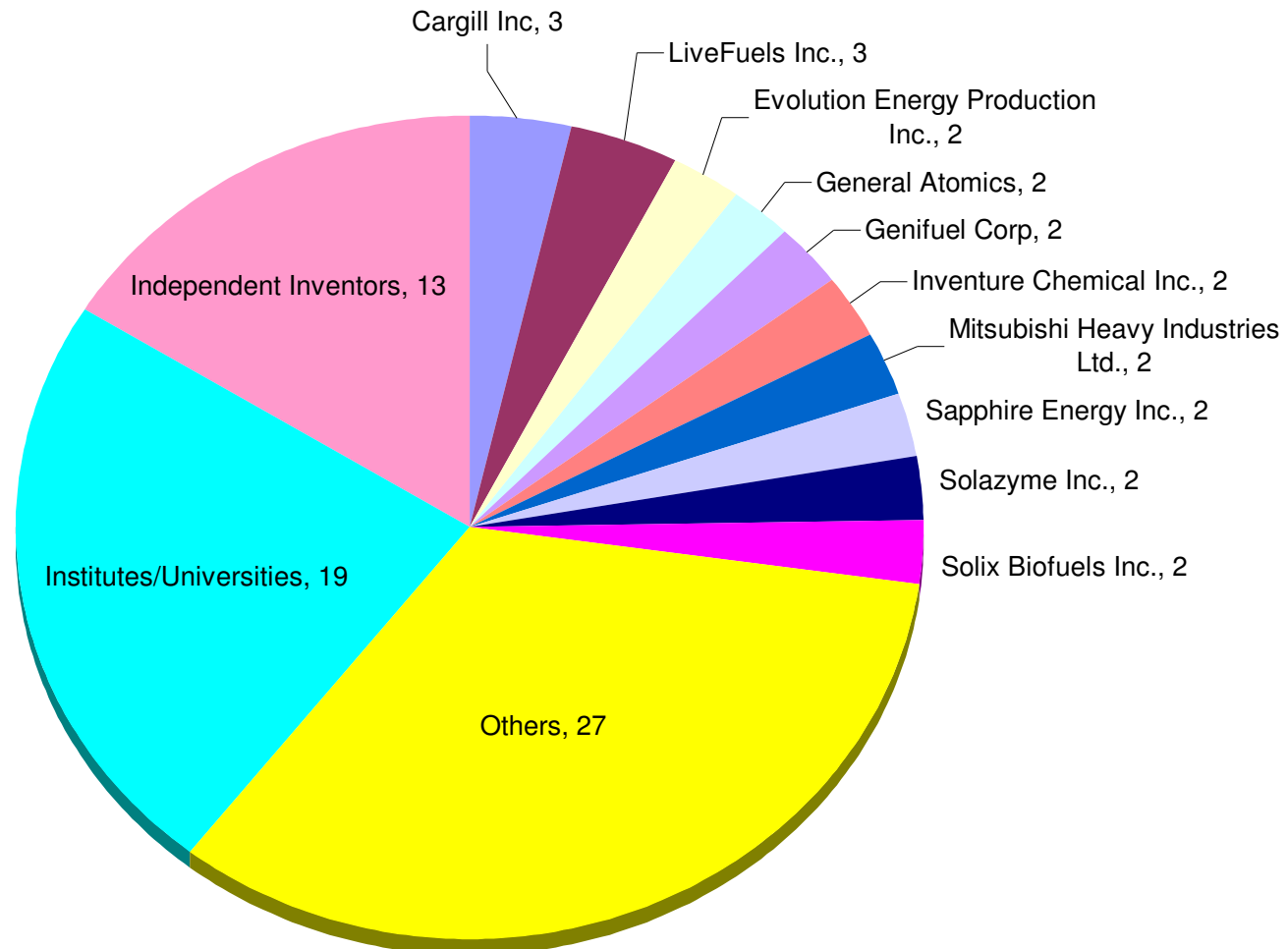
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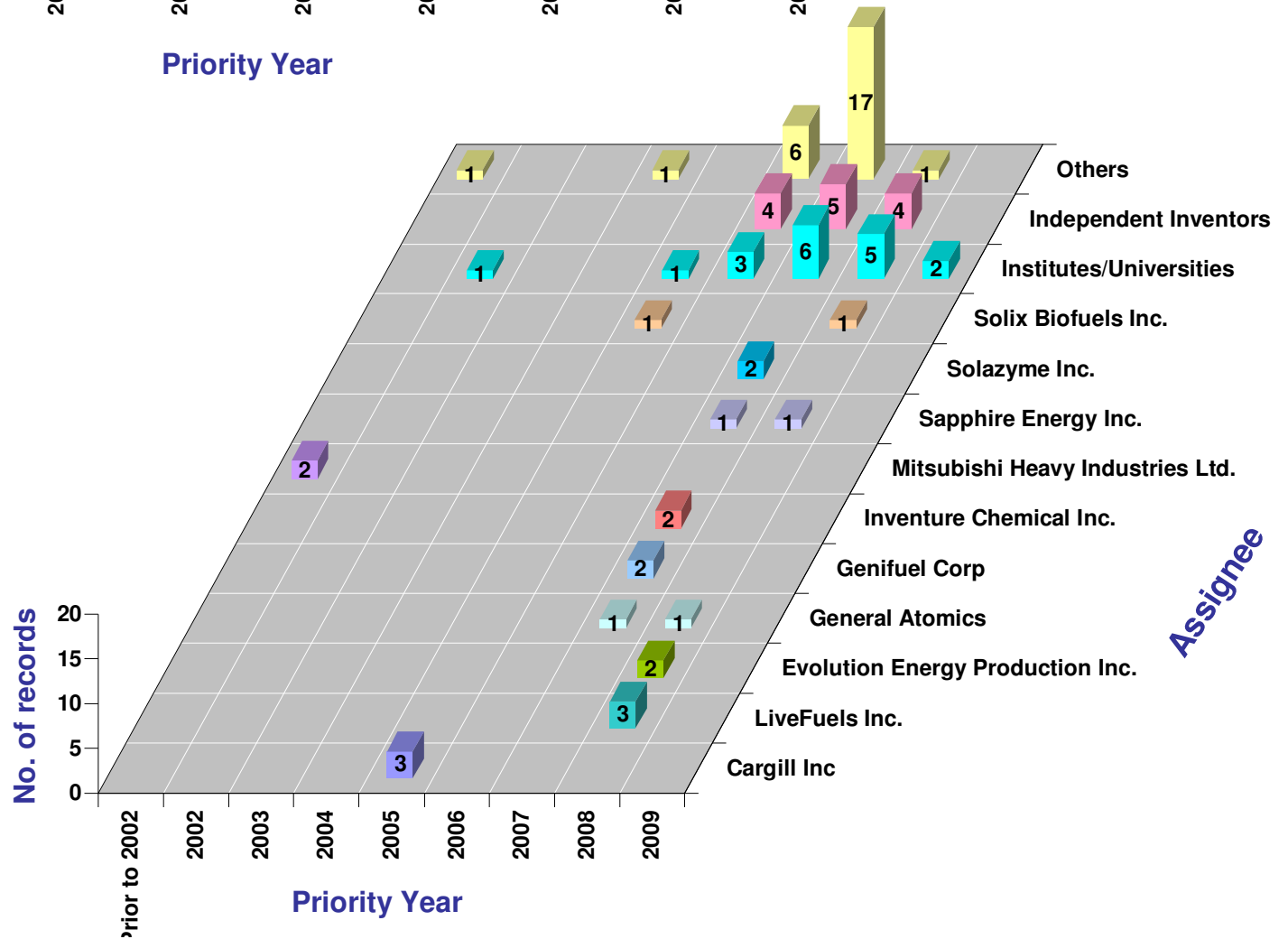
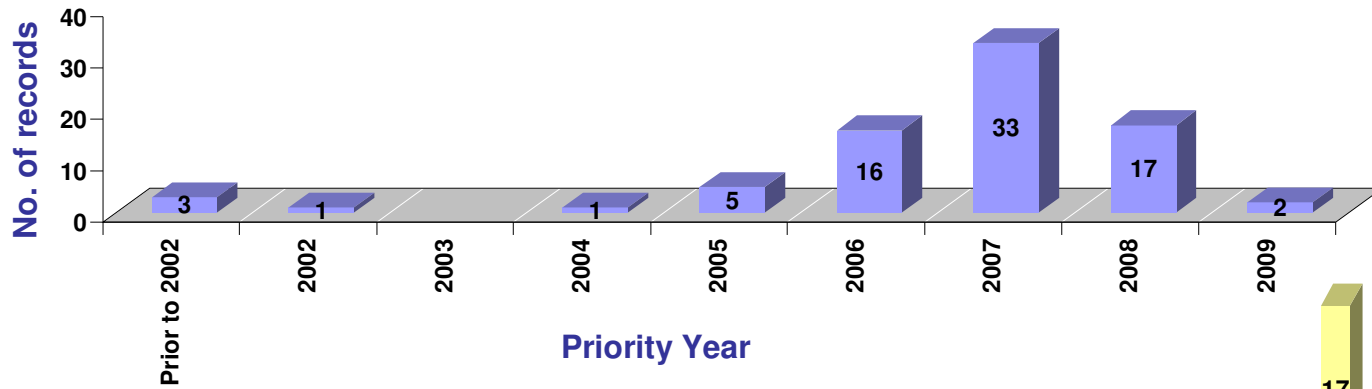
Assignee-wise distribution of patent activity



Academic/ Research Institutes

Patent/ Publication Number	Assignee	Title	Focus
CN1699516A	Tsinghua University	Process for preparing bio-diesel-oil by using microalgae fat	Production of biodiesel
CN101475823A			Production of biofuel
US20090211150A1		Method for producing biodiesel using high-cell-density cultivation of microalga chlorella protothecoides in bioreactor	Production of biofuel
US20090298159A1		Method for producing biodiesel from algae	Production of biofuel
WO2009015358A2	Nevada System of Higher Educat	Methods, Systems, And Apparatus For Obtaining Biofuel From Coffee And Fuels Produced	Production of biofuel
CN101423769A	Ocean University Of China		Production of biodiesel
US20090069610A1	North Carolina State University	Process for conversion of biomass to fuel	Conversion of biolipids and bio-oils to biodiesel
US20090158638A1	Old Dominion University	Direct conversion of biomass to biodiesel fuel	Production of biofuel
US7479167B2	Michael Markels, Jr. Revocable trust	Method of production of biofuel from the surface of the open ocean	Production of biodiesel
US20090234146A1	University of Hawaii	Methods And Compositions For Extraction And Transesterification Of Biomass Components	Conversion of biolipids and bio-oils to biodiesel
WO2009073822A2	The Ohio State University Research Foundation	Molecular Approaches For The Optimization Of Biofuel Production	Production of biodiesel
US20090071064A1	Colorado State University Research Foundation	Continuous Algal Biodiesel Production Facility	Production of biofuel
EP2129784A1	Korean Institute of Industrial technology	Method of Producing Biofuel Using Sea Algae	Production of biofuel
US20070282119A1	The Penn State Research Foundation	Green biodiesel	Production of biofuel
US20100041926A1	Korea Ocean Research and Development Institute	Liquefied Extract Of Marine Algae For Producing Bio-ethanol Under High Pressure And Method For Producing The Same	Production of ethanol
KR913825B1	Knu-Industry Cooperation Foundation	Eco-friendly production method of ethanol using bluegreen algae the ethanol method of manufacturing using the cyanophyceae inhabiting the fresh water.	Production of ethanol
US7176005B2	The Regents of the University of California	Modulation of sulfate permease for photosynthetic hydrogen production	Production of hydrogen

Patent filing trends



Focus of major assignees

Assignee	Focus
Cargill Inc.	Processing photosynthesis product to form mixture of biofuel and carbon dioxide and separating carbon dioxide
Live Fuels Inc.	Extracting biofuel from algae by subjecting algae to environmental stress or pressure
Evolution Energy Production Inc.	Production of Biofuel
General Atomics	Method for producing biofuel from pollutant-fed algae
Genifuel Corp.	Two-stage process for producing oil from microalgae
Inventure Chemical Inc.	Production of biodiesel, cellulosic sugars, and peptides
Mitsubishi Heavy Industries Ltd.	Production of ethanol
Sapphire Energy Inc.	Synthesis of fatty acids, lipids or oils from genetically modified photosynthetic microorganisms
Solazyme Inc.	Fermentation of oil-bearing microorganisms
Solix Biofuels Inc.	Closed bioreactors for algal culture and harvesting

Citation velocity of highly cited patents

Patent/ Publication number	Assignee	Title	Year Issued	Self Citati ons	Cited by Others	Citation Velocity
WO2007025145A2	Sunsource Industries	Method, Apparatus And System For Biodiesel Production From Algae Procède, Appareil Et Systeme De Production De Biodiesel A Partir D'algues	2005		Stroiazzo Mougín Bernard AJ (3)	0.15
US20070048848A1	Sunsource Industries	Method, apparatus and system for biodiesel production from algae	2005		Sapphire Energy Inc (2)	0.14
WO2007128798A1	BIOeCON International Holding	Improved Process For Converting Carbon-based Energy Carrier Material Procã%ã% Amã%ã% Pour La Conversion De Matã%ã% Porteur D'ã%ã% Base De Carbone	2006	1	Schweiger Martin (2)	0.09
US20070048859A1	Sunsource Industries	Closed system bioreactor apparatus	2005		Chevron Inc (3)	0.09
US20080160593A1	Thorpe North & Western LLP	Two-stage process for producing oil from microalgae	2006		Fuji Fuels Pty Ltd (1)	0.05
US7135308B1	Propulsion Logic LLC	Process for the production of ethanol from algae	2006		Xyleco Inc (3)	0.06
WO2007144441A1	STROIAZZO-MOUGIN Bernard and GOMIS CATALA Cristian	Method for obtaining energy-generating compounds by means of electromagnetic energy	2006	1	Bio Fuels Systems (1)	0.05
US20060074256A1	Gagnebin & Lebovici LLP	Biodiesel process	2004		Solix Biofuels (1)	0.05
US20080155890A1	Thorpe North & Western LLP	Controlled growth environments for algae cultivation	2006		Fuji Fuels Pty Ltd (1)	0.03

Recent Non-patent literature

- **New Generation Biofuels –Technology & Economic Perspectives**
- **Algae as an alternative and renewable resource for biofuel production**
- **Placing microalgae on the biofuels priority list: a review of the technological challenges**
- **Life-Cycle Assessment of Potential Algal Biodiesel Production in the United Kingdom: A Comparison of Raceways and Air-Lift Tubular Bioreactors**