

# Unilever-Laundry Detergents-Product-to-Patent-Mapping

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## Objective

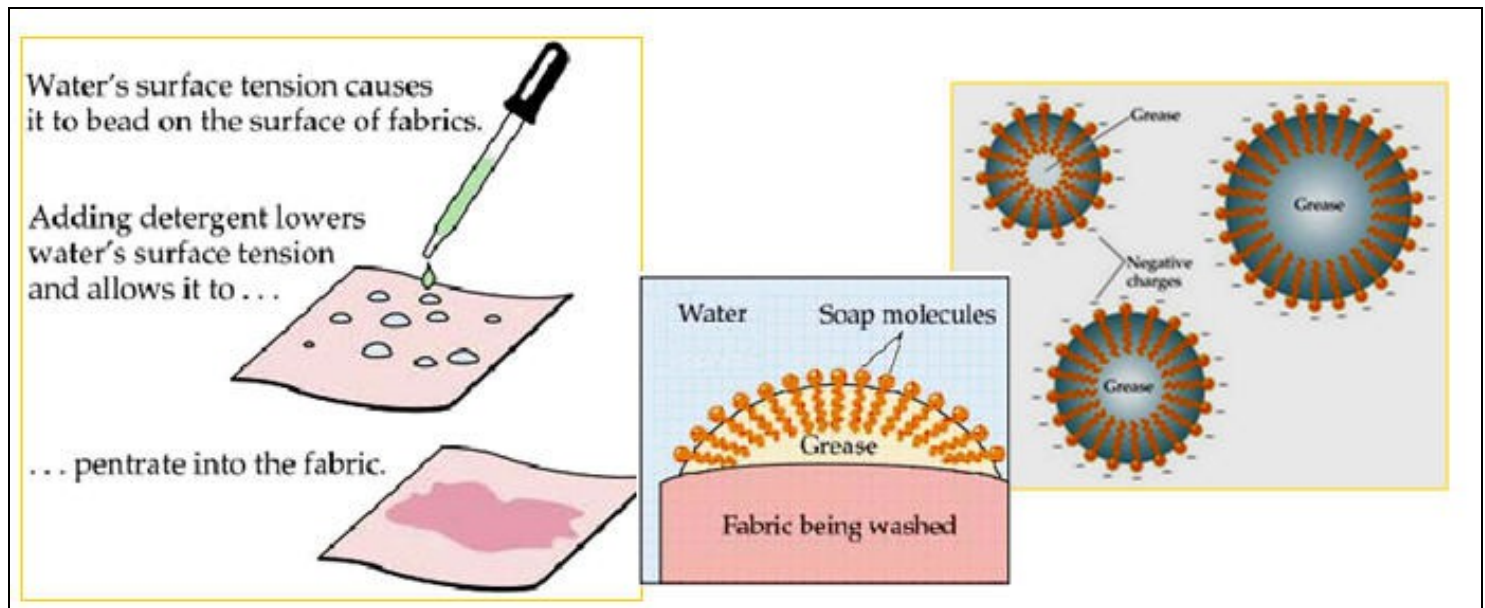
- In-depth understanding of Laundry detergents:
  - ◆ Landscape today's existing technologies,
  - ◆ Predicting the future landscape/trends,
  - ◆ Current global scaling strategies and
  - ◆ Product to patent mapping

## Introduction to Laundry Detergent

- Laundry detergent means any substance intended for use in laundry washing, based on surfactants and builders, formulated or manufactured to enhance the cleansing action of water. The term includes soaps, bleach as well as powder and liquid synthetic laundry detergents.[Laundry detergents](#)
- A Laundry detergent composition is a formulated mixture of raw materials that can be classified into different types based on their properties and function in the final product. The different classes of raw materials are surfactants, builders, bleaching agents, enzymes, and minors which remove dirt, stain, and soil from surfaces or textiles gave them pleasant feel and odour.
- Laundry detergent has traditionally been a powdered or granular solid, but the use of liquid laundry detergents has gradually increased over the years, and these days use of liquid detergent equals or even exceeds use of solid detergent.
- Nowadays laundry detergents are becoming increasingly popular as they can be metered automatically into the washing machine, impart softness, antistaticness, resiliency to fabrics, mild to eyes and skins and shows good dispersibility in water. Because it is consumed when it is used, the sale of laundry detergent is a rather large business. There are many different kinds or brands of laundry detergent sold, many of them claiming some special qualities as selling points.[Laundry detergents: an overview](#)

The following picture demonstrates different laundry detergent mechanisms.

- Soap decreases surface tension of water, making it a better wetting agent.
- Soap converts greasy and oily dirt into micelles that become dispersed in water.
- Soap keeps the greasy micelles in suspension and prevents them from redepositing until they can be washed away. (repulsion of the charges)



Detergent Mechanism

## Sample taxonomy



Sample taxonomy

## Concept table

S.No.	Concept 1	Concept 2
1	Detergent	Laundry
2	Surfactant	Cloth
3	Syndet (Synthetic detergent)	Fabric
4	Detersive	Dress
5	Dispersant	Attire
6	Abstergent	Raiment
7	Surface active agent	Costume
8	Soap	Garment
9	Washing agent	Textile
10	Cleansing agent	Apparel
11		Garb

## Classes and definitions

IPC/ECLA CLASS										
C11	Animal And Vegetable Oils, Fats, Fatty Substances And Waxes; Fatty Acids Therefrom; Detergents; Candles									
	C11D	Detergent Compositions								
		C11D1	Detergent compositions based essentially on surface-active compounds; Use of these compounds as a detergent							
			C11D1/28	Sulfates of polyoxyalkylene ethers						
			C11D1/29	Sulfonation products derived from fatty acids or their derivatives, e.g. esters, amides						
			C11D1/72	Ethers of polyoxyalkylene glycols						
				C11D1/72B	End blocked ethers					
			C11D1/722	Ethers of polyoxyalkylene glycols having mixed oxyalkylene groups; [N: Polyalkoxylated fatty alcohols or polyalkoxylated alkylaryl alcohols with mixed oxyalkylele groups (C11D1/72B takes precedence)] [C0810]						
		C11D3	Other compounding ingredients of detergent compositions covered in group							
			C11D3/20	Containing oxygen						
				C11D3/20B	Alcohols; Phenols					
					C11D3/20B1	Monohydric alcohols				
						C11D3/20B1B2	Fatty or with at least 8 carbon atoms in the alkyl chain			
			C11C	Fatty Acids From Fats, Oils Or Waxes; Candles; Fats, Oils Or Fatty Acids By Chemical Modification Of Fats, Oils, Or Fatty Acids Obtained Therefrom						
		C11C3		Fats, oils, or fatty acids by chemical modification of fats, oils, or fatty acids obtained therefrom						
C12	Biochemistry; Beer; Spirits; Wine; Vinegar; Microbiology; Enzymology; Mutation Or Genetic Engineering Brewing Of Beer									
	C12P	Fermentation Or Enzyme-Using Processes To Synthesize A Desired Chemical Compound Or Composition Or To Separate Optical Isomers From A Racemic Mixture								
		C12P7	Preparation of oxygen-containing organic compounds							
			C12P7/62	Carboxylic acid esters						
			C12P7/64	Fats; Fatty oils; Ester-type waxes; Higher fatty acids, i.e. having at least seven carbon atoms in an unbroken chain bound to a carboxyl group; Oxidised oils or fats [N: (Phosphoglycerides having fatty acids with at least 7 carbon atoms, phosphoglycerides having less than 7 carbon atoms C12P7/62)] [C0710]						

## Search strategy

Search restricted to **Assignee - Unilever** : ("UNILEVER" OR "CONOPCO" OR "CHESEBRO" OR "LEVER" OR "LIPTON" OR unilever\* OR conopco\* OR conopco\* OR conpco OR ilever) and  
**Priority Date** (earliest) >=19900101 and **Country** :GB patents (United Kingdom) only

S.No.	Search comment	Patent scope	Search strategy	Patent hits	
1	Class codes of particular surface active agents related to detergents	Class codes	C11D000172 or C11000D172B or C11D0001722 or C11D000320B1B2 or C11D000129 or C11D000128	20 hits	
2	Related class codes of surfacte active agents other than detergents with key words of detergent and clothes	Related Class codes with key words of detergent and clothes	C11C0003 or C12P000764 OR C12P000762 (Clean*4 or soap*1 or surfactant*1 or (surface adj3 active) or deterative*1 or detergent*1 or Dispersant*1 or abstergent*2 or wash*3 or syndet*1) and (cloth*3 or fabric*2 or laundr*2 or attire or raiment*1 or costume*1 or Garb*1 or garment*1 or dress*3 or apparel*1 or textile*1)	11 hits	
3			2 NOT 1	9 hits	
1 OR 2			29 hits		
4	Combined query	Full patent spec	Any Classification C11D* (Clean*4 or soap*1 or surfactant*1 or (surface adj3 active) or deterative*1 or detergent*1 or Dispersant*1 or abstergent*2 or wash*3 or syndet*1) and (cloth*3 or fabric*2 or laundr*2 or attire or raiment*1 or costume*1 or Garb*1 or garment*1 or dress*3 or apparel*1 or textile*1)	81 hits	
6			5 NOT 4	63 hits	
7	Combined query		4 OR 5	92 hits	
8	Key words of detergent	Claims, Title or Abstract	(Clean*4 or soap*1 or surfactant*1 or (surface adj3 active) or deterative*1 or detergent*1 or Dispersant*1 or abstergent*2 or wash*3 or textile*1)	126 hits	
9	Key words of laundry	Full patent spec	(cloth*3 or fabric*2 or laundr*2 or attire or raiment*1 or costume*1 or Garb*1 or garment*1 or dress*3 or apparel*1 or textile*1)	110 hits	
10	Combined query		8 AND 9	93 hits	
11	Key words of detergent	Full patent spec	(Clean*4 or soap*1 or surfactant*1 or (surface adj3 active) or deterative*1 or detergent*1 or Dispersant*1 or abstergent*2 or wash*3 or textile*1)	184 hits	
12	Key words of laundry	Claims, Title or Abstract	(cloth*3 or fabric*2 or laundr*2 or attire or raiment*1 or costume*1 or Garb*1 or garment*1 or dress*3 or apparel*1 or textile*1)	65 hits	
13	Combined query		11 AND 12	65 hits	
14	Combined query		10 OR 13	97 hits	
15			14 NOT 7	15 hits	
16	Final query		14 OR 7	107 (103 unique hits)	

## Products information

S.No	Persil
1	Persil Tablets Biological
2	Persil Tablet Freshness of Comfort
3	Persil Std Powder Freshness of Comfort
4	Persil Small and Mighty The Original Non-Bio
5	Persil Small and Mighty Liquid Freshness Of Comfort
6	Persil Small and Mighty Colour
7	Persil Small and Mighty Biological
8	Persil Colour Care Biological Powder
9	Persil Gel Colour Tablets
10	Persil Gel Tablets Bio (UK)
11	Persil Liquigel Biological
12	Persil Liquigel The Original Non-Bio
13	Persil Naturals Capsules Aloe Vera & White Flower



Persil

14	Persil Naturals Capsules Olive Blossom Fragrance with Camomile Extract
15	Persil Naturals Liquid Aloe Vera & white Flower
16	Persil Naturals Liquid Olive Blossom Fragrance with Camomile Extract
17	Persil Naturals Powder Aloe Vera & White Flower
18	Persil Naturals Powder Olive Blossom & Camomile
19	Persil Non-Bio Tablets
20	Persil Powder Biological
21	Persil Powder Colour Care Biological
22	Persil Powder The Original Non-Bio
23	Persil Small & Mighty Capsules 2in1 with Comfort Passion Flower
24	Persil Small & Mighty Capsules 2in1 with Comfort Sunshiny Days
25	Persil Small & Mighty Capsules Biological
26	Persil Small & Mighty Capsules Colour
27	Persil Small & Mighty Capsules Non-Bio
28	Persil Small and Mighty Aloe Vera Non-Bio
29	Persil Aloe-Vera Non-Bio Powder
30	Persil (Liquid) Silk & Wool
31	Persil 2in1 with Comfort Passion Flower
32	Persil 2in1 with Comfort Passion Flower Powders
33	Persil 2in1 with Comfort Sunshiny Days Liquids
34	Persil 2in1 with Comfort Sunshiny Days Powder
35	Persil Aloe Vera Non Biological Powder
36	Persil Aloe Vera Non-Bio Tablets
37	Persil Biological Powder
38	Persil Biological Tablets

S.No	Surf
1	Surf Capsules Tropical Oasis of Ylang Ylang & Lily
2	Surf Breeze Biological Washing Powder
3	Surf Capsules Tropical Ylang Ylang
4	Surf Capsules Lavender & Jasmine Secret Garden
5	Surf Cool Fresh Biological Tablets
6	Surf Lavender & Jasmine Secret Garden Powder
7	Surf Liquid Breeze
8	Surf Powder Lavender and Oriental Blossom
9	Surf Powder Sunshine Lemons & Bergamot
10	Surf Powder Tropical ylang Ylang
11	Surf Small & Mighty Liquid Lavender & Jasmine Secret Garden
12	Surf Small & Mighty Liquid Mystic Waterfalls of Lotus Flowers & Wild Freesia
13	Surf Small & Mighty Liquid Sunshine Orchard of Lemons & Mandarin Flower
14	Surf Small & Mighty Liquid Tropical Oasis of Ylang Ylang & Lily
15	Surf Small and Mighty SunShine
16	Surf Spring Biological Tablets
17	Surf Spring Biological Washing Powder
18	Surf Sunshine Biological Tablets
19	Surf Sunshine Orchard of Lemons & Mandarin Flower Powder
20	Surf Tropical Oasis of Ylang Ylang & Lily Powder



Surf

21	Surf Tropical Tablets
22	Surf Twilight Sensations Powder Jasmine & Black Gardenia
23	Surf Twilight Sensations Powder Vanilla & Black Orchid
24	Surf Twilight Sensations Small & Mighty Jasmine & Black Gardenia
25	Surf Twilight Sensations Small & Mighty Vanilla & Black Orchid

## Product to Patent Mapping- Unilever (U.K.) - A Case Study

### Objective

To understand Laundry strategy and IP protection of Unilever, and their correlation with products as well as market strategy by patent-product mapping in United Kingdom.

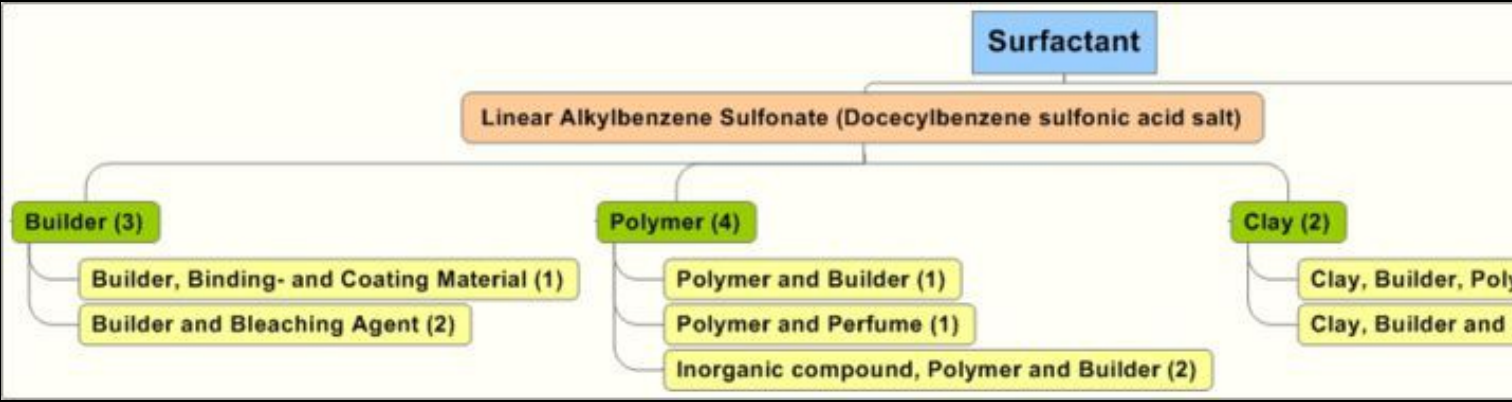
### Analysis and Mapping Summary

Total No. of Products	Total No. of Patents	Patents mapped	Products mapped	Unmapped products	Unmapped patents
63	58	11	54	9	47

### Mapped Surfactants Summary

Surfactants	No. of patents mapped	No. of products mapped
Linear Alkylbenzene Sulfonate (Docecylbenzene sulfonic acid salt)	9	51
C12-15 Pareth-5	2	3

### Mapped Formulation Clustering - Summary

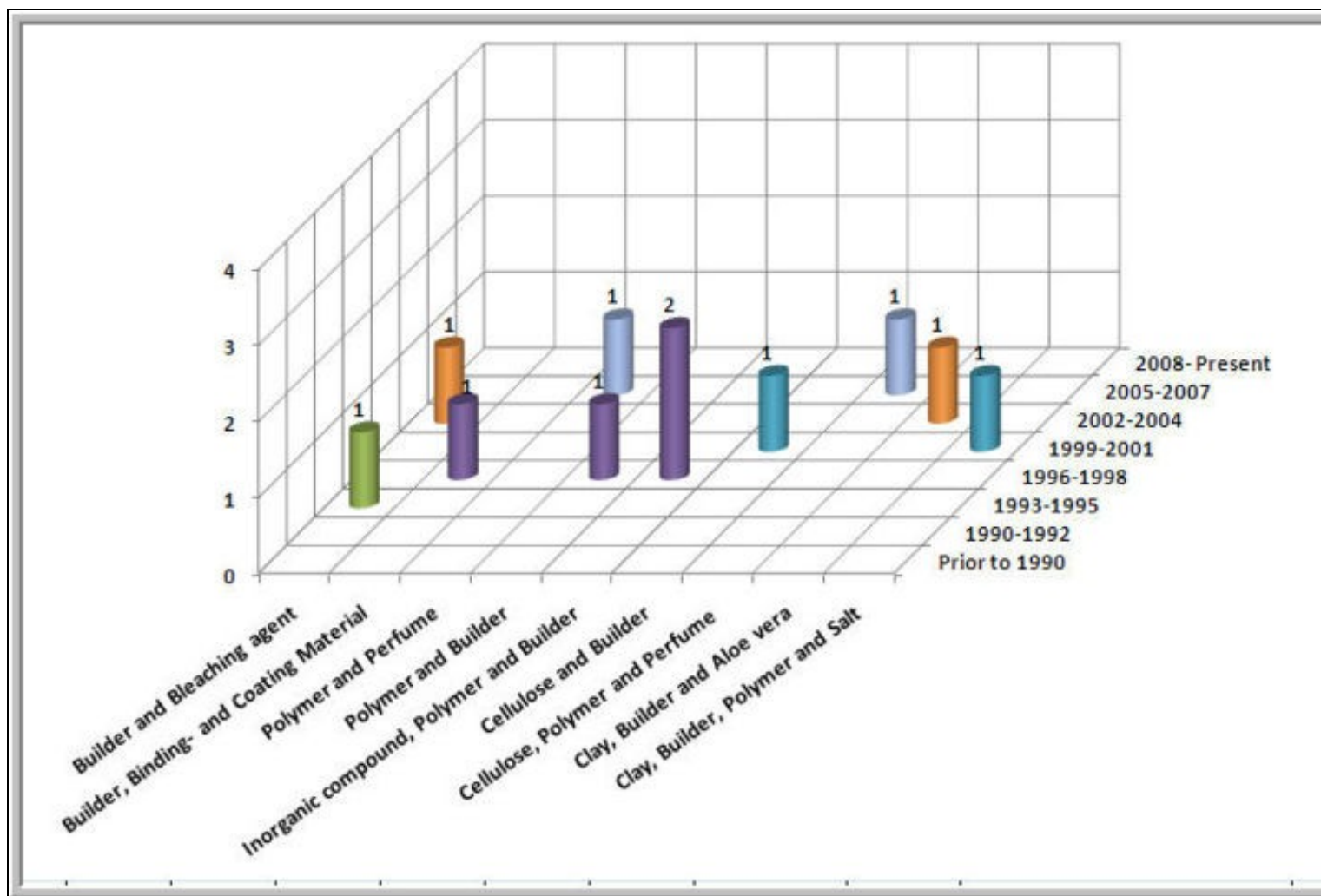


### Mapped Formulation Clusters

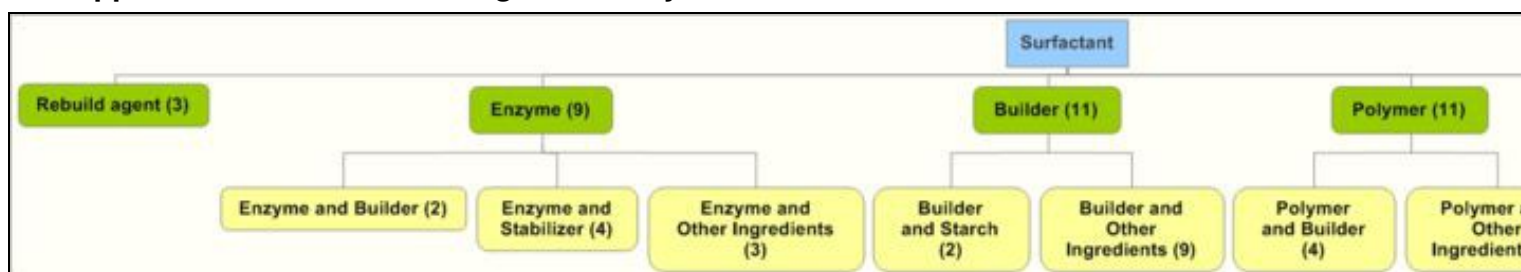
S.No	Ingredient	First priority date	No.of patents
Linear Alkylbenzene Sulfonate (Docecylbenzene sulfonic acid salt)			
1	Builder	11/11/1993	3
2	Polymer	10/22/1996	4
3	Clay	12/22/1999	2
C12-15 Pareth-5			
1	Cellulose	12/15/1999	2

### Year-Wise Patenting Activity for Mapped Formulation Clusters





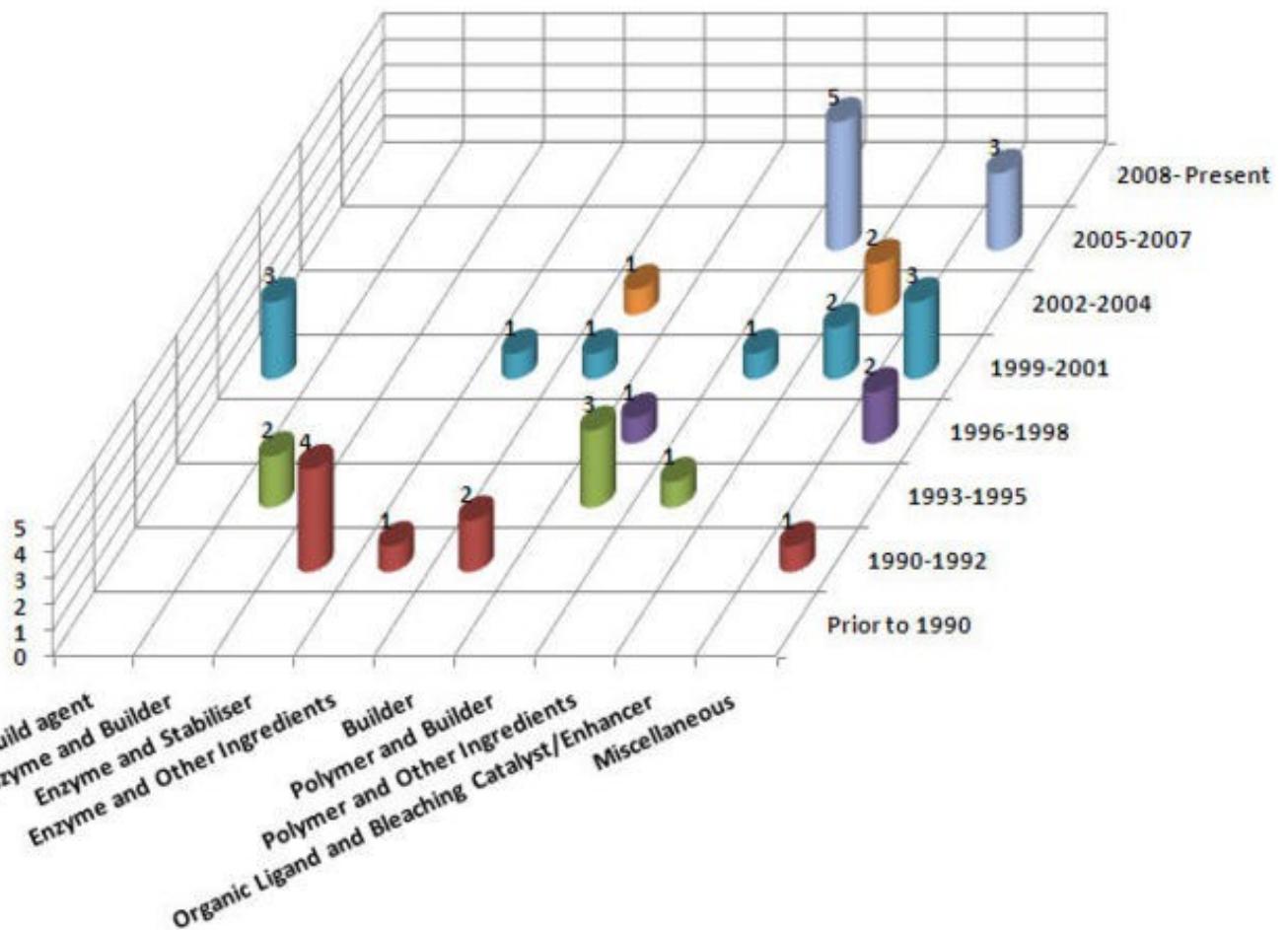
## Unmapped Formulation Clustering - Summary



## Unmapped Formulation Clusters

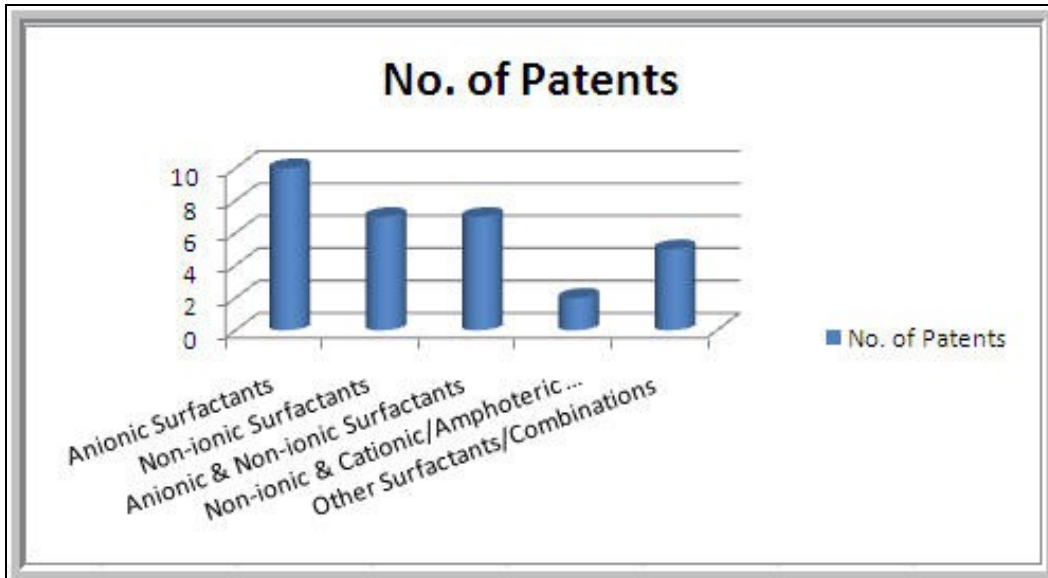
S.No	Ingredient	First priority date	No.of patents
Surfactant			
1	Rebuild agent	3/29/2000	3
2	Enzyme	06/07/1990	9
3	Builders	04/16/1992	11
4	Polymers	9/4/1995	11
5	Organic Ligand and Bleaching Catalyst/Enhancer	9/11/2000	4
6	Miscellaneous	8/28/1991	9

## Year-wise Patenting Activity for Unmapped Formulation Clusters



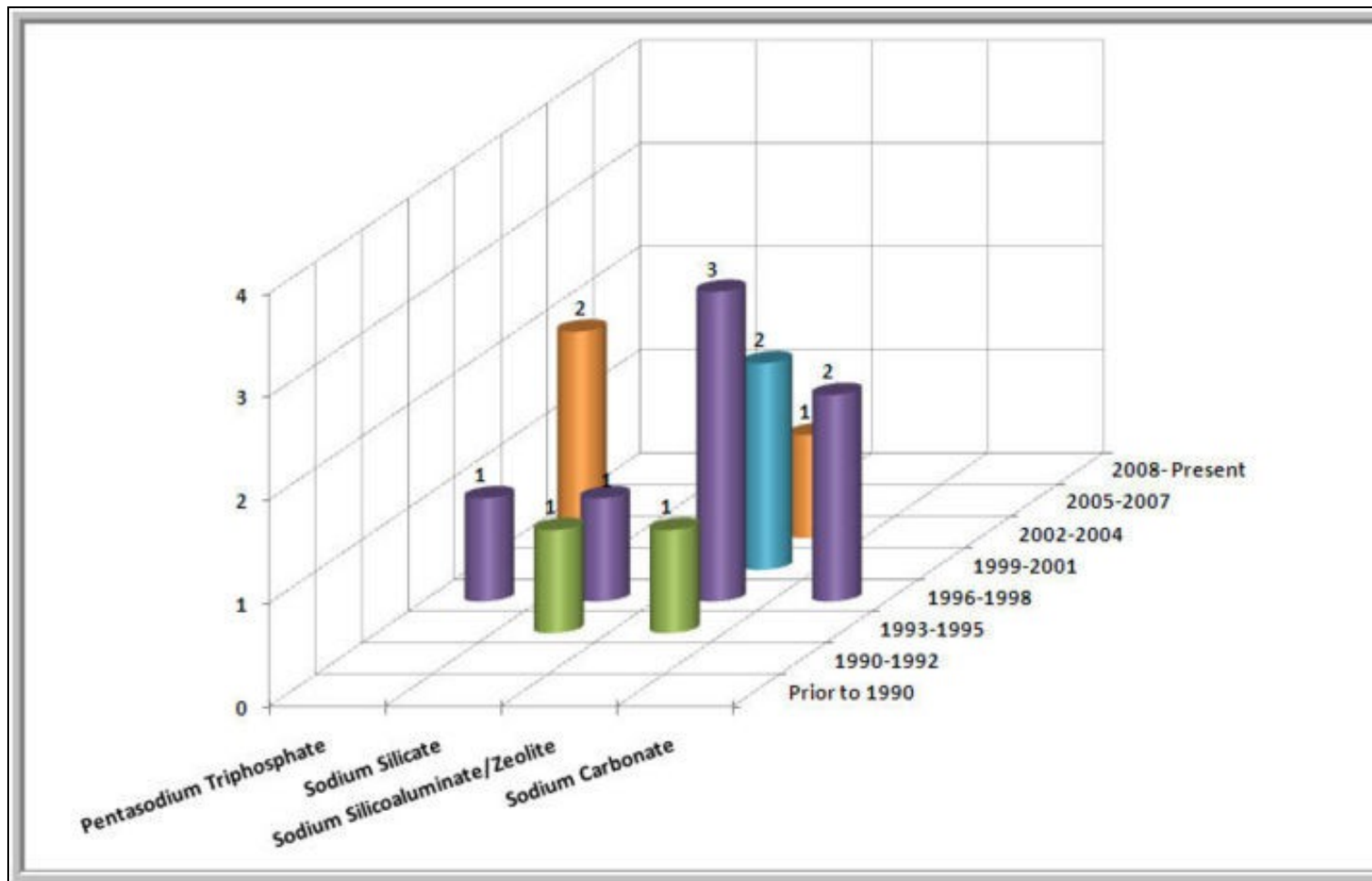
## Claimed Surfactants

Anionic surfactants and their combinations with non-ionic surfactants are the most claimed surfactants in patents.

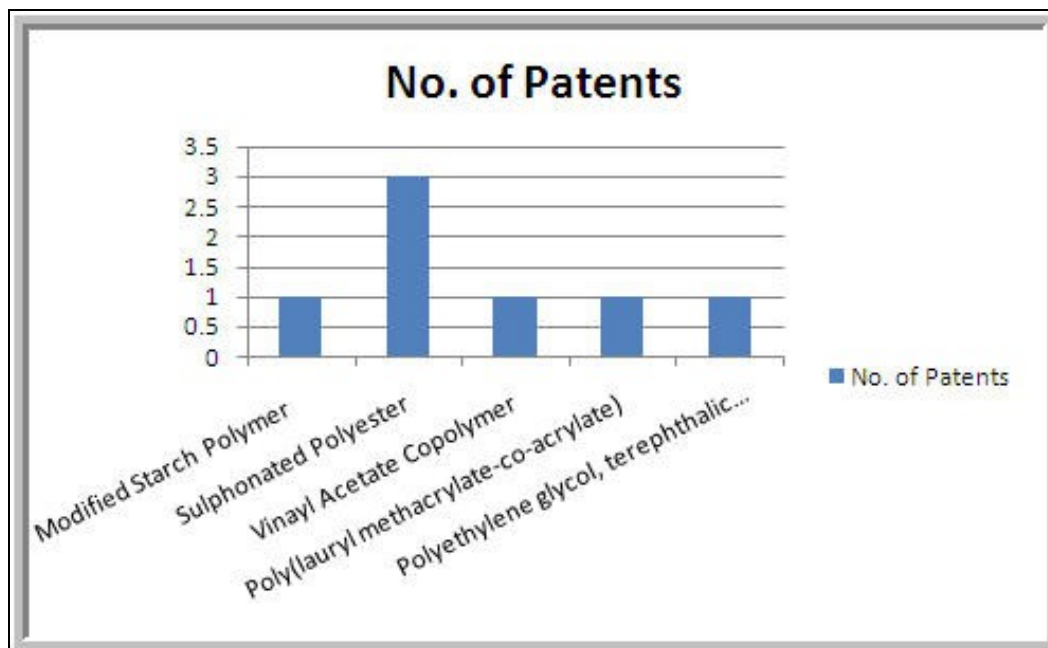


## Builders Used in Mapped Patents

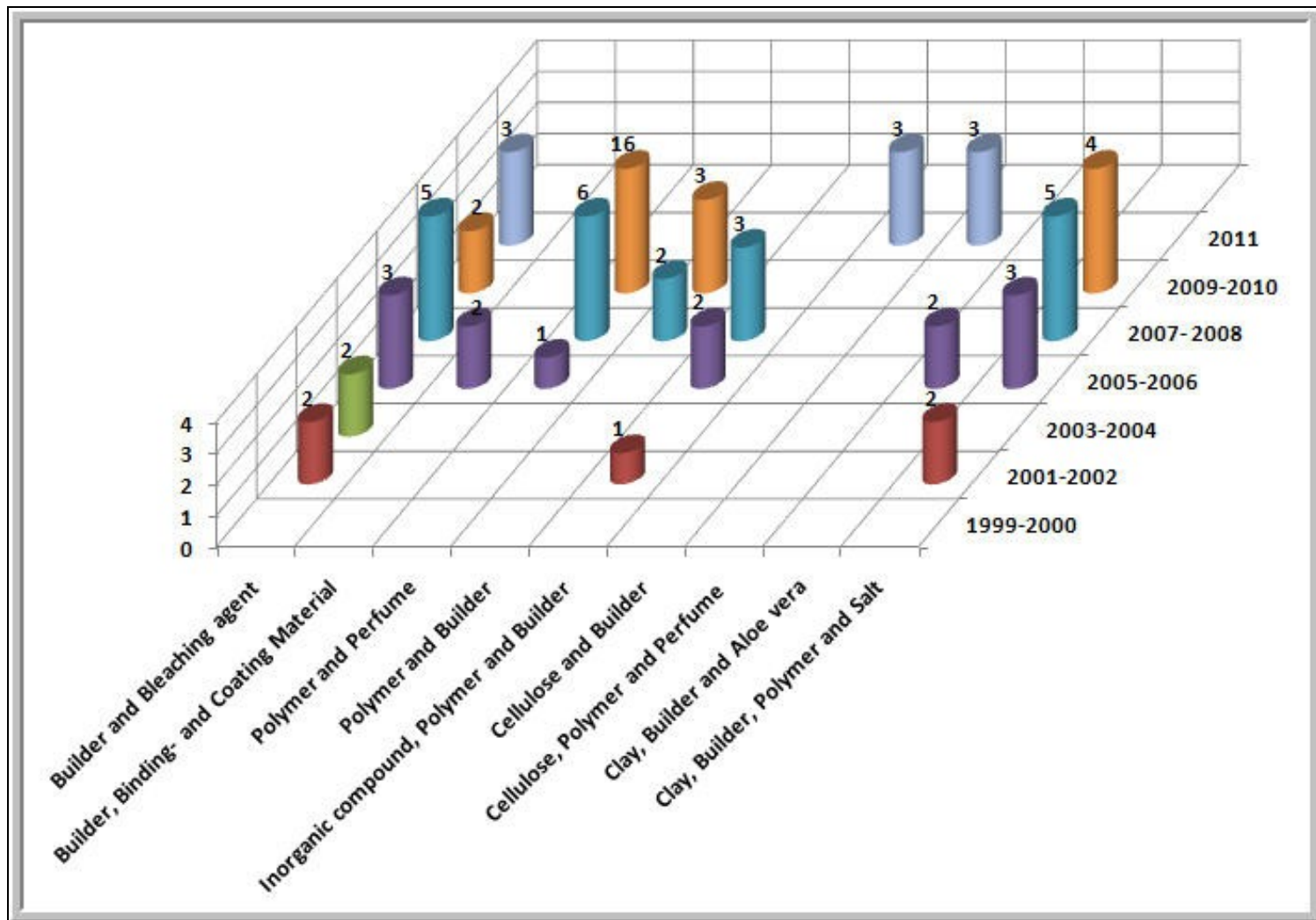




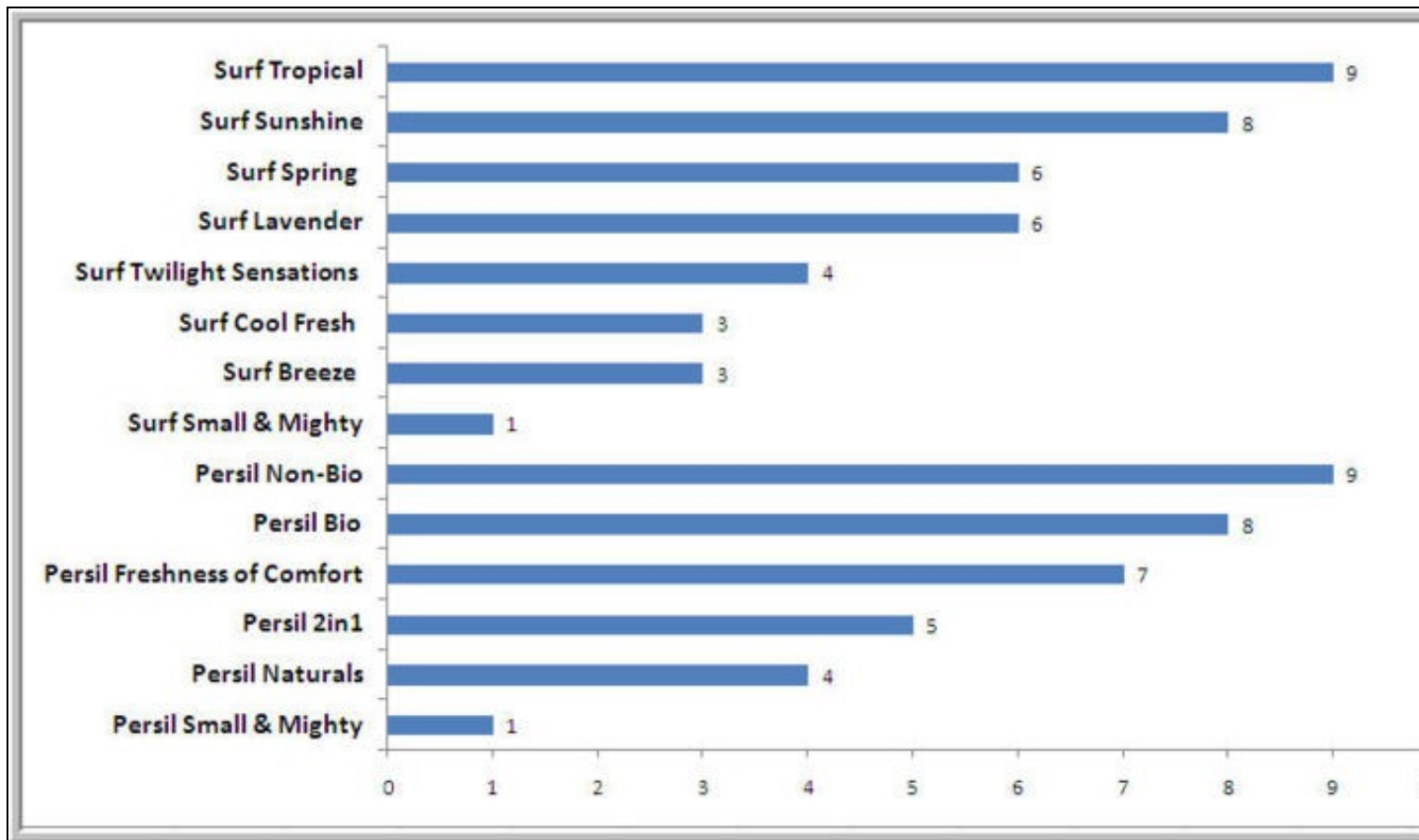
### Soil-Releasing Polymers Used in Mapped and Unmapped Patents



### Product Launch Timeline for Mapped Products



Most IP Protected Brands for Unilever (U.K.)



## Final Spread Sheet with Complete analysis

[Click here for Unilever Final analysis Spread sheet](#)

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