

Surfactants Europa

**A Directory of Surface Active Agents
available in Europe**

Volume 1 Belgium
Republic of Ireland
The Netherlands
United Kingdom

Compiled and edited by Gordon L. Hollis

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Preface

Surface active agents have experienced a phenomenal rate of growth, both in type and in quantity, since World War 2. Their manufacture and their many fields of application involve a vast number of companies worldwide.

This directory has been compiled with a view to providing, for the technical and commercial needs of such companies, easy access to up-to-date product information according to type, geographical area, supplies and trade-names, with details of properties and applications.

Surfactants Europa follows on the success of the author's Surfactants UK, the two volumes of which were published in 1976 and 1979 by his consultancy, Tergo-Data. It is planned to appear in three volumes of which this first volume covers the UK, Belgium, The Netherlands and the Republic of Ireland.

To avoid excessive and wasteful repetition, the products of any one company are listed in full in a principal entry; where they are listed as available in other countries, the reader is referred to this main entry. The siting of the main entry, based on administrative and operational considerations, does not necessarily reflect the

relative importance of a company's operating centres in the various countries, nor does listing necessarily imply manufacture in that country.

As further countries are covered in succeeding volumes, more product and manufacturer information will become available for cross-reference between volumes and it is intended to incorporate this at the earliest opportunity so as to provide a fully comprehensive directory. In the meantime, it is hoped that the present format will prove acceptable in the transition from the UK directory to the new Surfactants Europa.

For the compilation of Volumes 2 and 3, which will cover other countries of Western Europe, it is intended to invite all known manufacturers and distributors of surfactants to provide details of their products for inclusion. The publishers will also be pleased to hear at any time from companies of whatever European country, who wish to submit details of their products.

Darlington
April 1982.

G.L. Hollis

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The editor is grateful to all companies who have supplied data for this publication.

Special thanks are due to individual staff members of certain companies who have provided specialist information including particularly ICI Ltd., Brixham Laboratory for data concerning biodegradability. Thanks are also due to Rohm & Haas (UK) Ltd., for data concerning precautions and handling (page XIII).

G.L.H.



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SURFACE ACTIVE AGENTS



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Agents throughout the world.

I A guide to the use of this directory

1. Nature of surfactants

The term SURFACTANT is the contemporary name for surface active agent, the class of chemical products whose molecules are able to modify the properties of an interface, eg. liquid/air or liquid/liquid by lowering the surface or interfacial tension, with associated changes occurring in other properties eg. wetting. Depending on the precise chemical nature of the product, the properties of, for example, emulsification, detergency and foaming may be exhibited in varying degree.

Every surfactant possesses the fundamental characteristic of having two essential portions, one being water repellent, usually called hydrophobic (or lipophilic), the other being water attractive, usually called hydrophilic (or lipophobic). The hydrophobic portion comprises a collection of hydrocarbon groups, some at least of which form a linear chain which may or may not be substituted to varying extents. The hydrophilic portion comprises a solubilising group such as sulphate, sulphonate or ethoxylate, for example.

The number and arrangement of the hydrocarbon groups together with the nature and position of the hydrophilic groups combine to determine the surface active properties of the molecule. C₁₂ to C₂₀ is generally regarded as the range covering optimum detergency properties while optimum wetting and foaming properties usually occur at somewhat shorter chain lengths.

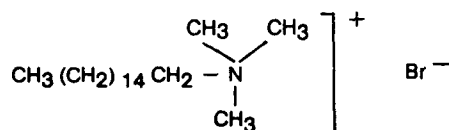
Surfactants fall into four categories depending on the distribution of electrical charge on the molecule viz.

- (i) Anionic in which the hydrophobic portion of the molecule carries a residual negative charge eg.

Sodium dodecyl sulphate:
 $\text{CH}_3\text{CH}_2(\text{CH}_2)_9\text{CH}_2\text{OSO}_3^- \text{Na}^+$

- (ii) Cationic in which the hydrophobic portion carries a residual positive charge eg.

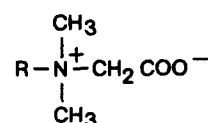
Cetyltrimethyl ammonium bromide:



- (iii) Nonionic in which there is no residual electrical charge eg.

Dodecylalcohol ethoxylate:
 $\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$

- (iv) Amphoteric in which both positive and negative centres are to be found in the molecule, eg. Alkyldimethylbetaine:



Depending on the conditions prevailing, cationic, anionic or nonionic type properties may be exhibited.

Further examples of products in the above categories are to be found in the Product lists.

Each of the above types finds application in industry though anionic and nonionic types are used in much greater quantities than cationic and amphoteric.

Anionics and nonionics form the organic active constituents of detergents and also find widespread usage in wetting, spreading, emulsification, dispersing, foaming and other applications in a whole host of manufacturing industries including, in particular, textiles, resins, plastics, paints, paper, metal treatment, polishes, pharmaceuticals, disinfectants, agricultural preparations and many more.

Cationics are mainly used for bactericidal and softening applications but also find outlets in, for example, ore flotation and road making. They are not of importance in providing detergency as such.

Amphoterics have many actual and potential applications including detergency but hitherto have attracted relatively little commercial interest on account of their high cost of manufacture. Their usage, however, is now increasing, in part at least, because of their extra mildness to the skin providing real advantages in cosmetic and toiletry preparations.

2. Scope

The total number of surface active agents available worldwide is truly vast and such that no list can at any point in time be completely accurate. There will always be some products in process of withdrawal from their particular range or in course of modification while others continue to be added.

Furthermore any total of available products necessarily represents only a fraction of those potentially available by ringing the changes on hydrophobes and hydrophiles and their modifications. This is particularly so in the case of the versatile alkoxyates where the number of moles of ethylene oxide or propylene oxide per mole of hydrophobe is theoretically almost limitless. Values between 1 and over 100 occur in practice. In these cases, where specific ranges are offered, others can frequently be tailor-made by arrangement with the manufacturer.

This directory is concerned with surface active agents available in the UK, Belgium, The Netherlands and the Republic of Ireland. The question of where to draw the boundary between those products which should be included and those which should not has been carefully considered.

In theory, any product is potentially available worldwide regardless of where it is manufactured. However, the majority of products used in a particular country will normally be made in that country, although imports will nevertheless be an important part of the surfactant scene.

The criterion for inclusion in this directory is that the product listed should be on the range of a company possessing a selling organisation or an approved agent in the country concerned, irrespective of where the products may be manufactured.

Data has in all cases, been provided by the suppliers.

The directory does not, in general, include ready-for-use multi-component formulations, eg. household washing powders, dish-washing liquids, household and industrial cleaners, cosmetics etc.

3. Presentation of data

Surfactants are listed on the basis of the four types described in paragraph 1 with subdivision where appropriate, together with a miscellaneous section covering:

- (i) Groups of products more usefully listed together than separately by category.
- (ii) Certain blends of surfactants, often including products of more than one class.
- (iii) Products of undisclosed composition.

Sequestering agents are itemised separately in a single section following the surfactant lists.

For ease of cross-reference, an alphabetical list of trade names is included and also a summary of industries using the various types of surfactants and sequestering agents together with the sections in which the references are to be found. An alphabetical list of the suppliers' names, address, telephone and telex numbers is provided and there is a chemical formula glossary covering the many surfactant types listed.

4. Surfactant application

For a directory such as this to be of maximum value, the properties of each product must be related to industries in which it finds or is likely to find application.

While some products are restricted in usage to specific outlets for which they may have been specially tailored, most are more likely to possess a variety of properties which may be usefully employed in many fields.

For reasons of space, key uses only have been mentioned. Such information varies from supplier to supplier. Some companies summarise properties and outlets for each product within a series while others prefer only the briefest reference in broad terms, often collectively for a group of products.

Further, one company's highlighted summary may differ from another's for what is apparently the same product. It must be emphasised that, while some of these variations may be random, merely reflecting one person's emphasis and preference compared with another, there may be very good reasons why a product should not be used in place of an apparently similar one.

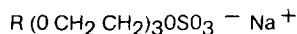
There might be important effects on, for example, physical properties and compatibility which are of great importance in application eg. in formulations. These differences can arise, for example, through variations in feedstock from which the hydrophobe is made, the method of conversion to the surfactant, the reagent and/or catalyst used, in the degree of purification or for other reasons.

It is essential therefore that before any product is used for a given application, its suitability be confirmed by the would-be user, consulting with the supplier if in any doubt whatever.

5. Terminology

As with organic compounds in general, there is more than one description of most surfactants. In addition, various trade names and descriptions have also developed with commercialisation. In many cases more than one of these is in regular use for a given product or class of products.

The situation may be illustrated by the case of the product having the following chemical formula:

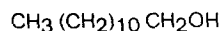


Where R is a mixture of alkyl radicals in the region of $\text{C}_{12}\text{H}_{25}/\text{C}_{14}\text{H}_{29}$.

This product will be recognised as a key ingredient of many liquid detergent formulations. Descriptions by which it may be known include, for example, among many others:

Lauryl ether sulphate
Lauryl 3-ethoxysulphate or lauryl 3EO sulphate
Sodium salt of linear alcohol ethoxysulphate
Alkyl polyglycol ether sulphate.

Not only are there thus many ways of describing the above product but the term "lauryl" is also capable of more than one interpretation. In the strict text book sense, this alcohol has the formula:



Commercially, however, lauryl alcohol is normally offered in two grades. The purer form is usually called "narrow cut" and comprises a mixture of lauryl ($\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{OH}$) and myristyl ($\text{CH}_3(\text{CH}_2)_{12}\text{CH}_2\text{OH}$) alcohols in ratio of approximately 2:1.

The "broad cut" grade in common use comprises the analogous products having even numbers of carbon atoms between 8 and 18 inclusive, peaking in the $\text{C}_{12}/\text{C}_{14}$ range.

For specialised applications, eg. in dentifrice formulations, an individual C_{12} cut (ie. a true "lauryl") is sometimes used and known, for example, as n-dodecyl alcohol to distinguish it from the "lauryl" as normally understood.

In recent years, a number of alcohols made by so-called synthetic processes using petrochemically derived feed-stocks have appeared on the market for uses similar to those of the traditional lauryl alcohol derived from natural sources, viz coconut oil and palm kernel oil. In actual product description, the word "lauryl" is sometimes used in generic sense implying "lauryl type" alcohols including one or more of these synthetic types. In general, throughout this directory, product descriptions used are those used by the supplying company in its own literature. It follows therefore that effectively the same product will be described in different ways in different places.

During the compilation of SURFACTANTS UK it was envisaged that this situation would be rationalised in future editions. In the event, however, it has been decided to continue to refer to products in the supplier's preferred nomenclature. To have introduced product names other than - and in some cases significantly different from - those long established by a given supplier, could lead to unnecessary confusion.

6. Biodegradability

Biodegradability is a word with which those connected with the manufacture and use of surface active agents have been familiar for many years.

Following the initial highlighting about 1953, of the problem of limited biodegradability of branched chain alkylbenzene sulphonates work was initiated in several countries to identify the cause of the problem and provide a suitable remedy.

This led eventually to the adoption in the UK from the beginning of 1965 of a voluntary agreement between the detergent manufacturers and chemical suppliers that branched chain alkylbenzene sulphonates should no longer be used in household detergents. Corresponding arrangements have followed in other European countries, the USA, Japan & Australia (West Germany had introduced a legal standard of biodegradability in October 1964).

The EEC introduced two directives covering the usage of detergents and surface agents on 22 November 1973; the first Directi-



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ve (73/404/EEC) is a general directive stipulating that the average biodegradability of each class of surfactant (anionic, nonionic, cationic or ampholytic) in a detergent formulation shall be not less than 90%; the second Directive (73/405/EEC) specifies test procedures for determination of the biodegradability of anionic surfactants but, in order to take into account the unreliability of test methods, specifies a minimum biodegradability of 80% which has effectively become the standard used.

The different EEC countries have now largely put into effect this second Directive on anionic surfactants by means of the appropriate legislation. The EEC Commission meanwhile have proposed an amendment to this Directive although the nature of the changes proposed are relatively minor.

In regard to nonionic surfactants, a Commission proposal for an EEC Directive was published in April 1980.

This proposed directive is broadly similar to the anionic directive but with important difference in principle that the so-called "derogation clauses" would permit the temporary use of less well degraded nonionics in specified applications where there is at present no biodegradable technical alternative. This "derogation clause" has caused considerable controversy, but it seems likely that it will be incorporated in the directive when it finally appears.

At this time there have been no official moves in respect of EEC directives specifically concerned with cationic or ampholytic surfactants.

A further EEC Directive (79/831/EEC) which became effective on 18 September 1981, concerns the notification of new substances in regard to their classification, packaging, and labelling. The very wide-ranging notification dossier required for a new substance includes information on biodegradability, though the requirements are somewhat different in principle to those of the specific surfactant directives. The national regulations to implement this directive are at different stages of introduction in the various EEC countries, but for any new substances to be used in detergents there seems little doubt that a comprehensive dossier will be required.

In the case of non-household usage of detergents, there is an increasing trend for countries to enact regulations which effectively preclude the use of those formulations which include poorly degradable surfactants.

In product selection, of course, the key issue concerns which products are biodegradable and which are not and the associated question of acceptable test methods.

It is widely accepted that products having linear hydrocarbon chains are acceptably biodegradable whereas those with significantly branched chains are not. For example linear alkylbenzene sulphonates as opposed to the branched chain variety give acceptable biodegradability under normal user conditions and, as is well known, have been used now for many years as leading ingredients of the household detergent formulations.

Linear alcohol sulphates and ether sulphates, linear olefine sulphonates and paraffin sulphonates are further examples of acceptable anionic types.

In the case of alcohol ethoxylates, products having more than about 15 moles of ethylene oxide per mole of hydrophobe are generally regarded as being less readily biodegraded. In those with less than this number, the position as with anionics, depends on the hydrophobe.

Linear or straight chain alcohols give rise to biodegradable products. In the various product lists in this catalogue, alcohols are described in many different ways by the different suppliers. In many cases, it may not be readily apparent to the uninitiated which products are, in fact, linear or near-linear and therefore biodegradable and which are not.

The following alcohols referred to in the product lists fulfil the biodegradability requirement:

- (i) Naturally derived alcohols including lauryl, myristyl, cetyl, stearyl, oleyl, palmityl and tallow.
- (ii) The so-called "Ziegler" alcohols made by ethylene polymerisation.
- (iii) 'Dobanol' and 'Synprol', the primary detergent alcohols offered by Shell & ICI respectively.

In addition to the above, many other descriptions occur in the product lists of alcohols which may normally be taken to be biodegradable. These include:

Synthetic fatty alcohol
Synthetic primary alcohol
Synthetic Oxo alcohol
Saturated C13/C15 synthetic alcohol
C13/C15 Oxo alcohol
Natural fatty alcohol
Synthetic C12-15 Oxo alcohol
Saturated C16/C18 alcohol
C12/C14 alcohols
C16/C18 alcohols

Also referred to, however, are two alcohols which, although primary, are, as normally offered, branched. These are isodecanol and tridecanol whose derivatives are unlikely to be acceptably biodegradable (ref. (i)).

In all these cases, the intending user should check the position with the supplier if in any doubt.

The position with alkylphenols is less clear-cut. There is undoubtedly evidence to show that, under appropriate conditions, ethoxylates of these products can be caused to degrade for example, references (ii) and (iii). Their consistent degradability at an acceptable rate under normal user conditions, however, is not universally accepted (iv), but this topic does not seem to have been the subject of any very recent major investigations.

These notes are intended as guidelines to the likely biodegradability of the main types of anionic and nonionic surface active agents. In the product lists in this directory, mention will normally be made of biodegradability only when insufficient indication is given in the supplier's description of the constitution of the product to enable its biodegradability to be deduced in the light of the foregoing or other information. In such cases, any claim made by the supplier for biodegradability will be quoted - usually by means of the symbol '(B)' after the products trade name and code. The symbol is not normally quoted, however, in the many cases where the product description adequately indicates the biodegradability position.

Finally, it should be remembered that biodegradability requirements, as with others, differ from country to country. Thus, products may be used for certain export formulations which would not necessarily be acceptable if the same formulations were to be used in their country of origin.

- (i) "Surfactant Biodegradation". Swisher, p. 246 (Marcel Dekker Inc., New York. 1970).
- (ii) "The Biodegradation of p, t-Octylphenoxy polyethoxyethanol", J. Dupre, Rohm & Haas Company, Pa, Paper at C.S.M.A. Convention 7-9 Dec. 1964 at Atlantic City. N.J. U.S.A.
- (iii) "The Investigation of Biodegradability of Branched Nonylphenol Ethoxylates" Lars Rudling and Peter Solyom, Water Research Vol. 8, p.p. 115-119. 1974.

- (iv) "The effect of temperature on the removal of nonionic surfactants during small-scale activated sludge treatment", M.Stiff et alia.

Part I Water Research 7, 1003 (1973)

Part II Water Research 7, 1407 (1973)

7. Patents

Mention in this directory of the use of a given product in a particular outlet or of its manufacture by a particular method does not imply freedom from patent restrictions of any kind. Manufacturers and users should, in their own interests, clarify their positions in this respect in advance of any operation.

8. Precautions in handling

Surfactants are not in general classed as dangerous chemicals. Like all chemicals, however, they can give rise to adverse effects if not handled with proper precautions and common sense.

The following information is given without warranty for the general guidance of those concerned with the safe handling of surfactants, highlighting important areas where particular care should be taken. This information is based on that contained in the booklet: "Chemicals for Industry- Precautions for the safe handling of TRITON surfactants, HYAMINE sanitary chemicals and OROTAN dispersants" by Rohm & Haas (UK) Ltd.

It is the duty of works management and supervisory staffs to draw the attention of all employees to the essential industrial hygiene precautions to be taken when handling chemicals and chemical products. No difficulties should arise provided the precautions and recommendations appropriate to each particular product are followed. The main areas concerned include the following:

8.1 Ingestion

As a general principle, chemical products should never be swallowed. Food and drink should not be stored, prepared or consumed in areas where chemical products are being handled or used.

Supervisors should ensure that, in the event of ingestion taking place, they are fully acquainted with the action appropriate to the product ingested. In the case of many but not necessarily all surfactants, this will involve inducing vomiting. In all cases, immediate medical assistance should be sought.

8.2 Contact with the skin

In general, surfactants should be prevented from contacting the skin. Impervious preventive clothing, gloves, overalls and goggles should be worn. These products supplied in the free acid form should be handled with care like any strong acid. Again the supervisor should be aware of the appropriate recommended action. Washing off the skin with soap and water is frequently effective. Should protective clothing become saturated then it is usually recommended that this should be changed, hosed down and laundered before further use.

8.3 Contact with eyes, mouth and nose

As with any chemical or chemical product, contact with the eyes, mouth and nose should be avoided. Should any surfactant be splashed into the eyes, mouth or nose, the usual recommendation is to wash the splashed area immediately with copious quantities of clean water. The supervisor should at once be informed and medical assistance sought.

8.4 Inhalation

No hazards are usually presented by the main types of surfactants in normal usage. Care, however, should be taken to avoid the inhalation of any dust or vapours, and, where appropriate, dust masks should be worn. Personnel who may be overcome by vapours should be moved to an uncontaminated area and kept warm and quiet.

8.5 Fire and explosion risk

These are not major risks associated with the majority of surfactants. Under extreme conditions, however, thermal decomposition of certain types of products can give rise to the generation of highly toxic fumes eg. hydrogen chloride from quaternary chlorides.

Thermal decomposition of all products can yield oxides of carbon and oxides of sulphur may be produced when that element is present in the molecule.

A number of products have Abel Closed Cup Flash Points below 90°C and are therefore subject to the requirements of the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972 Statutory Instrument 917. Vapours from any of these products may travel to a source of ignition and flashback.

Finely divided powders may build up a sufficient dust concentration during handling to produce a fire or explosion hazard. Where large amounts are stored and processed, efficient air extraction equipment should be used. It is recommended that dust concentrations should be regularly monitored and maintained within Threshold Limit Values. References should be made to current operative values in accordance with the recommendations of the Health and Safety Executive.

As with any chemical or chemical product, medical treatment should be sought when anyone has symptoms apparently due to inhalation or contact with skin or eyes of any fumes from a fire.

8.6 Spillages

Any spillage should be cleaned up immediately whilst observing the foregoing precautions.

For solid products, dust masks should be worn and the product should be swept up and transferred to suitable containers for disposal. Liquid products should be contained and absorbed with inert material eg. sand or earth and transferred to suitable containers for disposal.

As with any chemical or chemical product, saturated clothing should be removed as described under 8.2 above. Overshoes are recommended for wear, particularly during clean-up operations after a spill.

8.7 General

Care should be taken to observe any labelled instructions on any container.

Products should be stored away from heat sources and protected from extreme low temperature. Covered storage should be used wherever possible.

Full consideration should be given to the possibility that hazardous by-products may arise from reaction between chemicals or from chemicals or chemical products exposed to heat or fire.

Proper utensils eg. scoops, lidded buckets, should be provided for handling chemical products. Their use must be reserved for this purpose only.

Simple first aid facilities should be kept available and personnel should be trained in their use.

Emergency facilities should be arranged to allow the face and eyes to be doused with copious quantities of water easily.

The foregoing information is given in good faith. The user should not assume on this basis that any product is suitable for any abnormal use. Clarification concerning any product and its usage should be obtained by consultation with the supplier.

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II Product lists / 1 Amphoterics

Supplier	Trade Name	Code	Description	App.% Active	Physical Form	Properties and/or Uses	Examples of Fields of Application
1A. BELGIUM							
Diamond Shamrock Europe Corporation	AMPHOLAN	B171	Cocoamido propyl betaine.	30	Liquid	Foaming & wetting agent.	Foaming agent for toiletries. Industrial cleaners, cement, gypsum & latex.
1A.1							
Tensia SA	TENSIBET	50	N-Alkylbetaine	30	Liquid	Foam booster, detergent. Antistatic effect.	Cosmetics; baby shampoos.
1A.2							
	TENSIBET	55	Alkylamido-betaine.	30	Liquid	Foam stabiliser, thickening agent. Mild to skin.	Lauryl ether sulphate formulations.

Supplier	Trade Name	Code	Remarks	Entry/Page
Companies represented in Belgium whose products are listed in Section indicated:				
Akzo Chemie div.d' Akzo Belge SA	ELFAN ARMOTERIC	A432 LB, SB		1D.2 / 5
Albright & Wilson BV	EMPIGEN	Series		1D.3 / 5
Cepes SA representing Miranol Chemical Co. Inc.	MIRANOL	Series		1D.21 / 11
Croda GmbH	CRODATERIC	Series	(per office in W. Germany)	1D.5 / 7
Henkel Belgium SA	DEHYTON DEHYTON	AB-30 K		1D.8 / 8
Keyser & Mackay	REXOTERIC	Series	representing Rexolin Chemicals AB	1C.3 / 2 (Jan Dekker BV)
Rohm & Haas Benelux NV	TRITON	QS-15		1D.14 / 9

The above includes only products of Companies listed in this Volume.

Supplier	Trade Name	Code	Remarks	Section/Page
1B. REPUBLIC OF IRELAND				
Companies represented in Ireland whose products are listed in Section indicated:				
Albright & Wilson Ireland Ltd.	EMPIGEN	Series		1D.3 / 5
Diamond Shamrock Process Chemicals Ltd.	AMPHOLAN	B171	(per UK office)	1D.6 / 7
Henkel Chemicals Ltd.	DEHYTON DEHYTON	AB-30 K	(per UK office)	1D.8 / 8
Irex & Co. Ltd.	CRODATERIC	Series	representing Croda Chemicals Ltd.	1D.5 / 7
Venture Chemical Products Ltd.	MIRANOL	Series	representing Miranol Chemical Company, Inc. (per UK office)	1D.21 / 11

The above includes only products of Companies listed in this Volume.

Supplier	Trade Name	Code	Description	App.% Active	Physical Form	Properties and/ or Uses	Examples of Fields of Application
1C. THE NETHERLANDS							
Aako NV representing Miranol Ch. Co. Inc.	MIRANOL	Series	For details, see Entry 1D.21 / 11				
1C.1							
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Akzo Chemie Nederland BV	ELFAN	A432	Amphoteric surfactant (Betain)	30	Yellowish, clear, liquid.		Baby shampoos; bubble baths; strong acid & alkaline cleaning detergents.
	ARMOTERIC	LB		30	Yellowish liquid.		
1C.2	ARMOTERIC	SB		30	Yellowish paste.		
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Jan Dekker BV representing Rexolin Chemicals AB	REXOTERIC	XCO	Carboxymethylated coco imidazoline derivative.	30 and 40	Liquid Viscous liquid.		High foaming, non irritating shampoos, bath & toiletry products.
	REXOTERIC	XJO	Carboxymethylated caprylic imidazo- line derivative.	30	Liquid		Low foaming alkaline & acid cleaners as detergent & wetting agent.
1C.3							
	REXOTERIC	XOO	Carboxymethylated oleic imidazoline derivative.	30	Viscous liquid.	Imparts softening properties.	Especially in high viscosity hand cleaners & detergent formulations.
	REXOTERIC	XCG	Specially designed amphoteric.	30	Liquid		Non-irritating conditioning shampoos, bath & toiletry products, when high viscosity desired.
	REXOTERIC	ZXCO	Blend of XCO & anionic surfactant.	30	Liquid		Ready-made base for non-irritating shampoos, bath & toiletry products.

TOP QUALITY AMPHOTERICS IN EUROPE

The widest range of amphoterics available in the world.

FOR SHAMPOOS AND TOILETRIES

Unique conditioning formulations
High viscosity and gel shampoos
Non-irritant and baby products
Unique 'liquid soap' developments

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Optimised synergistic products
Heavy, medium and light duty
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Anti-corrosive and 'off-shore'

**In addition to a top quality range of imidazoline derived
and other amphoteric types.**

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IN EUROPE

REXOTERIC

Details of Agents from:

Rexolin Chemicals AB,
Box 622
251 06 Helsingborg
Sweden
Tel: 042-26-1460
Telex 72353

IN UNITED KINGDOM

AMPHOLAK

All enquiries to:
ZETA

Euro American Technical
Services Ltd,
Douglas House, Chipping Warden,
Nr. Banbury, Oxon.
Tel: 0295-86466/7
Telex 677185

Supplier	Trade Name	Code	Description	App.% Active	Physical Form	Examples of Fields of Application
Jan Dekker BV representing Rexolin Chemicals AB 1C.3 Cont.	REXOTERIC	XCE	Carboxyethylated coco amphoteric.	40 min.	Liquid	Alkaline industrial cleaners.
	REXOTERIC	YOB	Carboxyethylated alkyl imidazoline derivative. (Salt free)	80		Specially designed for use in corrosion inhibitors & as a softener.
	REXOTERIC	YCB	Carboxyethylated coco imidazoline derivative. (Salt free)	45 and 100		High foaming detergent for use in all-purpose cleaners. Viscosity modulator, gel-builder & conditioner for low pH non-irritating shampoos, bath & toiletry products.
	REXOTERIC	YCE	Carboxyethylated coco amine derivative. (Salt free)	45		High foaming light to heavy duty cleaners in acid to alkaline pH range.
	REXOTERIC	YJE	Carboxyethylated short chain amine derivative. (Salt free)	45		Moderately foaming light to heavy duty cleaners. Excellent surface tension reduction over the whole pH range.

Ch. Fabr. Servo BV 1C.4	SERVO AMPHOLYT (B)	JA110	Modified imidazoline.	40	Liquid	Non eye-irritating.	Shampoo formulations.
	SERVO AMPHOLYT (B)	JA140	Modified imidazoline.	40	Liquid	Satisfies high demands on skin & eye irritation.	Hair shampoos.
	SERVO AMPHOLYT (B)	JB130	Betaine structure.	30	Liquid	Mild shampoo raw material with hair stipulating properties.	Baby shampoos.

Supplier	Trade Name	Code	Remarks	Entry/Page
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Companies represented in The Netherlands whose products are listed in Section indicated:

Albright & Wilson BV	EMPIGEN	Series		1D.3 / 5
Croda GmbH	CRODATERIC	Series	(per office in West Germany)	1D.5 / 7
Diamond Shamrock Europe Corporation	AMPHOLAN	B171	(per office in Belgium)	1D.6 / 7
L.F. Will & Co. Ltd.	DEHYTON DEHYTON	AB-30 K	representing Henkel AG	1D.8 / 8
REWO Nederland	REWOTERIC	Series		1D.13 / 9
Rohm & Haas Benelux NV	TRITON	QS-15	(per office in Belgium)	1D.14 / 9
Witco Chemical SA	SOCHAMINE	Series	(per office in France)	1D.22 / 12

Supplier	Trade Name	Code	Description	App% Active	Physical Form	Properties and/or uses	Examples of Fields of Application
1D. UNITED KINGDOM							
A.B.M. Chemicals Ltd.	AMBITERIC	D	High molecular weight substituted betaine.	90	Cream, unctuous mass.	Good alkali stability, good wetting, foaming, detergency & solubilising properties.	Industrial cleaner formulations; perfume solubilisation; antistat.
	1D.1 AMPHIONIC	25B	High molecular weight amino-acid derivative.	25	Golden liquid.	Good stability in presence of electrolytes, good compatibility with other types of surface active agents, efficient biocide with broad spectrum of kill. Dispersant.	Alkaline cleaning & sanitising formulations. Biocidal soaps.
Akzo Chemie UK Ltd.	ELFAN	A432	Amphoteric surfactant (Betain)	30	Yellowish, clear liquid.		Baby shampoos; bubble baths; strong acid & alkaline cleaning detergents.
	1D.2 ARMOTERIC	LB		30	Yellowish liquid.		
	ARMOTERIC	SB		30	Yellowish paste.		
Albright & Wilson Ltd. Detergents Division (Marchon)	EMPIGEN	BB	Alkylbetaine (formula(e) shown below in which R is mainly C12/C14)	30*	Almost water white	Very good foam booster & thickening agent. Wetting agent, stabiliser. Excellent acid & alkali stability. Some cationic properties.	Shampoos and detergents; co-active in baby shampoos (mild to the skin); static control.
	* - as betaine		$\text{e} \cdot \text{R} \cdot \text{N}^+ (\text{CH}_3)_2 \cdot \text{CH}_2\text{COO}^-$				
	EMPIGEN	BT	Alkylamido betaine	30	Amber liquid	Excellent foaming agent, stabiliser and thickening agent. Superior performance in presence of soap and hard water.	Toiletry preparations, especially bath care products, (mild to skin)
	EMPIGEN	CDR 10	Coconut imidazoline betaine		Amber liquid	Mild surfactants with excellent foaming properties. Compatible with anionic, nonionic & cationic surfactants.	Mild and non-irritant toiletry formulations such as baby, childrens' and family shampoos and bath care products.
	EMPIGEN	CDR 30	Coconut imidazoline betaine		Viscous amber liquid		
	ALKYL IMIDAZOLINE DERIVATIVES.						
	EMPIGEN	XDR 121	A coconut imidazoline betaine formulated with a sodium lauryl		Viscous yellow liquid		Intended for use in mild & non-irritant toiletry and personal care preparations, especially baby shampoos.
	EMPIGEN	XDR 123	ethoxy sulphate		Viscous yellow liquid		
	EMPIGEN	XDR 302	A coconut imidazoline betaine formulated with sodium lauryl sulphate.		Clear yellow liquid		