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EVOLUTION IN FERTILIZER REGULATIONS AND STANDARDIZATION IN THE EUROPEAN UNION

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RESUME

Après un bref rappel concernant les réglementations des Etats, la réglementation de l'Union Européenne et les possibilités d'action du Comité Européen de Normalisation, on aborde :

- *Les dernières évolutions de la directive "Engrais" 75/116/CEE*
- *Les travaux du Comité Technique CEN 260 "engrais minéraux et amendements minéraux" et notamment dans les domaines suivants :*

  . *propriétés physiques*
  . *engrais organiques et organo-minéraux*
  . *amendements minéraux*
  . *méthodes analytiques*

- *Relations entre la Commission et le CEN, plus particulièrement sous l'angle des mandats de normalisation, des mandats de programmation et du statut d'observateur actif au sein du Groupe de Travail "Engrais" de la DG III.*
- *Futur probable, tant que le plan de l'UE que du CEN.*

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INTRODUCTION

Some history

"Rules" have probably been with mankind since ever, starting with the will of the stronger applied through brute force and evolving to higher forms with "technical" progress, the most important being writing. This allowed some sort of permanence with the handicap of having to adapt continuously to new knowledge and subsequent technological evolution.

It was due to the recognition of nitrogen, phosphorus and potassium as plant nutrients by scientists in Germany and the United Kingdom more than 150 years ago, that materials other than farmyard manure, were accepted as fertilisers and traded. Wherever there is trade, there is fraud and, consequently, specifications and controls based on written rules.

In general, written rules regarding fertilisers and fertiliser trade appear in Europe at the turn of the century or earlier. Progress in manufacturing and analytical techniques coupled with better agronomical knowledge, but also some "smart" use, have prompted adaptation of these initial regulations ever since, always on individual national level. Finally, the advent of the Common Market compelled Member States to harmonisation, carried out through a Council directive published in 1975, and known as the 76/116/EEC Fertiliser Directive.

EEC 76/116 Council Directive and National Laws

Any law usually defines its object and scope. National fertiliser regulations in Europe therefore attempt to define what is a fertiliser or at least what is meant by a fertilising element. Unfortunately definitions vary from country to country to the extent that what might be a straight nitrogen fertiliser in the United Kingdom is not a fertiliser in France and a specific French liming material is a fertiliser in Germany, to take only few well known examples.

With such a level of complexity it would have been practically impossible to obtain a consensus on definitions and this is why the harmonisation directive is in fact a very technical one, which addresses the elimination of barriers to fertiliser trade within the Community, by providing a set of common fertiliser type rules concerning mainly denominations, specifications and analysis. The definition of a fertiliser in general is thus avoided and, under the umbrella of the "EEC fertiliser" label, all the specified types can be freely traded.

The harmonisation directive is being expanded continuously, mainly through modifications of its technical annexes. These modifications are subject to a complex process involving the Council, the Commission, the Committee of adaptation to technical progress and a specialist working group before becoming a Commission directive amending the 76/116 initial directive.

However, certain problems remain. EEC regulatory analytical methods have always been lagging product definitions and specifications. Organic and organo-mineral fertilisers have not yet been included in the directive even though the Commission has actively taken up the subject. Liming materials will probably never be considered. In theory, all those problems are solved by Article 30 of the Treaty of Rome which basically says that what is legally traded in one Member State should be legally traded in all other Member States but, in practice, this would lead to such a burden to the trader or the manufacturer that very few even dare considering an implementation of Article 30.

And what about CEN?

CEN stands for Centre Européen de Normalisation. It is a standardisation body based in Brussels. There is no point in detailing structure and functioning, suffice it to say that CEN members are national standardisation bodies of all EEC and EFTA Member States and that any standard accepted as CEN standard automatically supersedes within six months of publication any existing corresponding national standard, which has to be withdrawn. Furthermore, the status quo rule prohibits any member to publish any standard within the scope of a Work Item accepted the Technical Bureau of CEN which supervises the programmes of work of all the CEN Technical Committees.

RELATIONS BETWEEN THE COMMISSION AND CEN

The elaboration of any legislation requires usually vast amounts of expertise which may not all be available within the Commission or its Directorates (DGs). This is particularly true for technical expertise, even though officials working in Brussels come from very different horizons.

One would tend to distinguish two main pathways for any transfer of expertise; one which could be called "invited" and the other, "intended" or "uninvited". While both are important to the fertiliser sector, it is the former that warrants attention since it provides a formal way for the exchange of expertise and recognition of mutual interest between two different entities whereas the latter can be embodied by the word "lobbying" which is self-explanatory.

The invited pathway, while always at the initiative of the Commission, can take different aspects ranging from the granting of an observer status on meetings to representative bodies, short- or long-term contracts with renowned experts, study contracts with consulting companies, to mandates of the Commission designed to obtain standards under the umbrella of the 83/189/EEC directive. The Commission can also mandate pre-normative studies to CEN which may then impact the elaboration or the content of a directive in the draft stage.

Furthermore the Commission has been aware of different problems mentioned earlier in fields other than fertilisers and has implemented, some years ago, the so-called "New Approach". This means that when a technical problem in a directive can be solved by a standard, such a standard is incorporated into the directive by the simple mention of its title and reference number.

If the standard does not exist at the European level, then the Commission can ask the CEN to elaborate it. Replacement of national equivalents by a CEN standard being mandatory within six months, this ensures complete homogeneity within at least the European Union.

On the other hand, some members of the fertiliser industry considered that:

- certain aspects of the fertiliser business do not warrant regulation but need some sound standards which the industry could implement on its own, in particular in the field of physical properties, since these are directly related to quality,

- since European regulations do not cover all types of products, there is a dire need to provide some harmonisation, mainly in organic fertilisers, organo-mineral fertilisers and liming materials; this could be done through CEN standards,

- it is the interest of the industry to be informed at an early stage of what is being prepared in the regulatory area and, due to prior CEN contacts with the Commission, it was deemed possible to establish an information channel through this independent organisation.

With all the above in mind, the French fertiliser industry proposed to CEN, through AFNOR, the national standardisation association, the creation of a specialised Technical Committee in charge of fertilisers and liming materials. The proposal was accepted by CEN in 1990 with ensuing creation of the CEN Technical Committee 260 "Fertilisers and Liming Materials".

Once the Technical Committee had been established and its initial programme of work accepted by the CEN Technical Bureau, with the prerequisite that CEN would not encroach on regulatory prerogatives of the Commission in areas already regulated, a meeting was held with Commission representatives to present them the scope and objectives of the Technical Committee 260, establish communication channels and mutual understanding.

The final outcome was that CEN Technical Committee 260 was offered an active observer status with the Commission DG III Working Group "Fertilisers", experts of which discuss and draft proposals for the Committee of adaptation to technical progress. The active observer status entails participation in all meetings of experts. First-hand regulatory knowledge becomes available to the Technical Committee which is in a position to provide positive consultative input. The active observer post is manned by the Technical Committee chairman and a deputy.

On meetings of the DG III Working Group "Fertilisers" where CEN observers have been present since 1991, the level of understanding between participants is such today, that CEN observers are frequently requested to provide "on the spot" opinion and not only formal input from the Technical Committee. It can also be said that Technical Committee expertise has been recognised by the fact that a first mandate for analytical methods related to chelated micro-nutrients and two studies in the same area has been proposed by the Commission. Further studies and, eventually, standardisation mandates, are foreseen.

This short presentation of the existing Commission/CEN relationship in fertilisers may seem quite simple and straightforward. Things are not so simple when it comes to details because the establisment of a mandate is a complex procedure entailing discussions within the Commission itself, even before official Commission/CEN discussions since strict financial and time-table schedules have to be agreed on. Furthermore, careful planning must also be considered if several mandates are to be managed together in order not to put too much constraint on manpower and time allocated to these tasks at the expense of other priority committments of Technical Committee experts, most of whom have their primary concerns in their companies which have become real experts in belt-tightening, finance and manpower reductions.

LATEST DEVELOPMENTS OF THE 76/116/EEC "FERTILISER" DIRECTIVE

Micro-nutrients have been introduced into the EEC directive back in 1989. However analytical problems having been left with the Member States pending implementation of the corresponding analytical directive and, at the same time, some difficulties having been experienced with type definitions and specifications, the whole matter was reconsidered.

Thus, in January 1993 an analytical directive (Commission Directive 93/1 EEC) related to micro-nutrient analysis of EEC fertilisers having an active ingredient content of less than 10% was published. Quite understandably, transposal into national laws was to be done at short notice; by the end of the year. However, there are products on the market of different Member States which contain more than 10% active ingredient and also chelated micro-nutrients. The former will be addressed by another directive now in the final decision stage within the Commission. Provided no unexpected events occur, this directive should be published in autumn this year.

Since difficulties have appeared with definitions and specifications for micro-nutrient fertilisers, the former directive of 1989 was amended (Commission Directive 93/69/EEC) introducing some simplifications and eliminating the possibility of mixing several chelating agents while maintaining the requirement of degree of chelation at 80% at least.

However, chelates and corresponding chelated micro-nutrients are still in an analytical limbo and the Commission has decided that this should be cleared with the help of CEN. To this end a mandate has been drafted and proposed to CEN. While still in the proposal stage at the time of writing, this first mandate regarding fertilisers is a radical departure from past practice in that it implements the "new approach" philosophy of the Commission in an area where some Member States were reluctant to relinquish even a small part of their activity in the regulatory process. Incidentally such a mandate will put some pressure on the CEN Technical Committee 260 "Fertilisers and Liming Materials" which will be in charge of bringing the relevant standards into being within a strict time scale, mainly due to the fact that a new working group had to be created to handle this analytical task on priority basis and that, in the actual dire state of the fertiliser industry in Europe, manpower is not freely available.

The same modification directive (93/69/EEC) does not only address micro-nutrients but also some other products based on magnesium nitrate and, above all, products based on urea-aldehyde condensates or containing dicyandiamide. This can be considered as the first venture of the Commission into the field of "slow release" fertilisers, even though the term never appears anywhere in the text.

As can be clearly seen from the above, products which are agronomically important and which have achieved some notoriety on the national level in Member States, are systematically considered as candidates for inclusion into the fertiliser directive. However, the Commision and Member States consider that the selection of a product entitled to bear the label "EEC fertiliser" should follow some simple criteria so that all candidates can be subjected to the same evaluation process. This has been on the agenda of several DG III Working Party "Fertilisers" meetings and a "Guide to the compilation of a technical file on application to designate fertilisers "EEC fertiliser" pursuant to Directive 76/116/EEC" is ready to be published in the Official Journal of the European Communities in section C. The status will be that of a communication of the Commission, which has no legally binding effect, but will establish a transparency in the selection process, while putting emphasis on efficiency and innocuity of candidate products.

There are other items on the fertiliser agenda of the Commission: organic and organo-mineral fertilisers and bulk-blends.

Organic and organo-mineral fertilisers are in the statute books of all Member States but there is no harmonisation at the EEC level today. Due to mounting pressures for regulating or recycling "residues", the Technical Committee decided to initiate an investigation through a special Task Force in order to screen all national regulations and provide a draft answer to this harmonisation problem. Both the Commission and the fertiliser industry are well aware of the difficulties facing such an attempt and have considered with great interest this undertaking to the point where the the Task Force's chairman was requested to present the draft document on organic fertilisers to the DG III Working Party "Fertilisers". The draft was then chosen as the basic document for further regulatory discussions which are now being actively pursued.

Since the normal follow-up of organic fertilisers is to consider mixtures of organics with existing mineral fertilisers, it has been agreed that any work done by the Technical Committe should be carried out under a study mandate from the Commission. Such a mandate would enable the Commission to have a formal report from a knowledgeable body tabled for discussions by the time the draft regulation on straight organic fertilisers is ready, while being in a position to follow all the screening and decisions which may have an impact the regulatory process, thus avoiding lengthy discussions in formal sessions.

The drafting of proposals for denominations and specifications of organic and organo-mineral fertilisers, most of which are based on raw materials originating in residues, gives rise to some difficult debates as acceptance or not of any particular item opens or closes options for disposal. This is particularly true with feedlot animal dejections and sewage sludges, both of which are available in sizable amounts in Europe and even slated for doubling of existing amounts during the next decade for the latter. Moreover, formal communications had to be established with two CEN Technical Committees; 223 "Organic Soil Amendments" and 308 "Sludge Characteristics" since plant nutrient content in such products is paramount to the distinction between what can be called a fertiliser or should be called something else.

Bulk blends came to the limelight following a formal question of Spain to the Commission regarding the existence of this type of product under the "EEC fertiliser" label with the understanding that if bulk blends were entitled to that label, a specific regulation should be brought to bear in order to ensure their homogeneity and eventually their even spreading. The answer to the Spanish question is that bulk blends are entitled to the "EEC fertiliser" label under the current directive provided they satisfy existing regulatory requirements regarding nutrient tolerances. Such a statement does not give a complete answer to the homogeneity requirement. Further discussions provided several regulatory suggestions but no consensus was reached in the experts group as to how this particular class of fertilisers could be regulated immediately while allowing regulatory controls on finished product. Consensus nevertheless prevailed that this is a complex matter and the Commission decided that it should be studied further by CEN with the aim of providing a solution.

STRUCTURE AND WORK ITEMS OF CEN TC 260 "FERTILISERS AND LIMING MATERIALS"

The structure of the Technical Committee is designed to handle as efficiently as possible all accepted work items following their respective categories:

a) Coordination Group composed of Convenors of all Working Groups and the TC chairman.

b) Working Group 1 "Harmonisation" designed to screen national regulations and different standards to determine which areas or subjects warrant European standardisation.

c) Working Group 2 "Physical Properties" designed to draft standards in the area of fertiliser physical properties, mainly with regard to those related to quality.

d) Working Group 3 "Liming materials" in charge of all standards related to liming materials with special attention paid to product designations and specifications.

e) Working Group 4 "Non-EEC fertilisers" responsible for drafting designations and specifications for fertilisers not regulated by directives, to be processed either as standards or be used by the Commission as working documents in establishing future regulations. It is to this WG that the above mentioned Task Force on organic and organo-mineral fertilisers reports. A "Slow-release" Task Force has also been established under this WG to provide draft definitions and standards for qualifying and quantifying what is meant by "slow-release" in the fertiliser business.

f) Working Group 5 "Analysis" created recently to handle analytical work and ring testing. This working group has the prospect of an ever increasing part of its workload stemming from analytical mandates proposed by the Commission.

As far as work items are concerned, it would be too long to spell out all of them even though all are designed to be concluded by a standard or, at least, a technical report. Nevertheless, the following are worth highlighting:

- Sampling

Even though ISO standards in this area are well established and renowned, anybody who has tried to implement them fully finds it a cumbersome undertaking. A simplified draft standard has therefore been drawn up in order to alleviate the workload entailed with ISO standards while maintaining the best possible representativity of the samples produced.

- Sieving Test method

We did not try to innovate so this standard is an adaptation of the existing ISO one with an important addition in the form of definition and method of evaluation of what is meant by median particle diametre or D50. This is an important parameter for fertilisers since it is one of the physical properties used by manufacturers of fertiliser spreading machines for calibration purposes.

Furthermore, the definition of D50 may be extended to any other theoretical particle size like D10 or D90 which let through the corresponding theoretical sieve openings respectively 10% or 90% of the sample under test. By taking the difference between these two (D90 - D10), one obtains another fertiliser characteristic, called granulometric spread. This is very important in estimating particle size homogeneity of any given sample.

- Flow rate

The rate of flow of any fertiliser through an opening is an important factor in fertiliser spreader calibration. We have therefore devised a very simple method, now in the ring testing stage, which will provide a meaningful measurement of this property.

- Homogeneity and dust

Everybody is well aware that non-homogeneous nutrient distribution in any fertiliser may result in crop problems. This is particularly true with bulk blends where manufacturers have succeeded in devising methods for the selection of raw materials and methods of manufacture which provide homogeneous mixes designed to stay homogeneous even during spreading operations. However, there is no satisfactory method for checking a fertiliser already on the market.

Therefore this subject has been accepted as a work item with the objective of devising a method as simple as possible. To make a long story short, progress to date has not been very satisfactory.

Dust has always been an objectionable item with fertilisers, more so nowadays in our health conscious environment. This is an item which often gives rise to claims from customers based on their visual perception of a "dusty" handling or spreading. In order to bring some objectivity to this field, several methods have been screened and a specific apparatus is now being tested in various manufacturers' laboratories. Test results have been very encouraging so far.

- Resistance to crushing

Extensive ring-testing has been carried out on a number of fertilisers with several methods, different apparatuses under various conditions. Unfortunately the conclusion is that no reliable results can be obtained. Therefore the work item will be concluded by a technical report stating the facts and no standard testing method.

- Organic and organo-mineral fertilisers

This item seems self-explanatory as to its meaning. However, as explained earlier, it entails some important points which may not be so simple, in a non-regulated area where at least standards are deemed necessary, if not a regulation, pertaining to denominations, specifications and analytical methods.

Since this item is on the agenda of the Technical Committee's 260 Task Force and the Commission has clearly stated its regulatory intentions, CEN has simply forwarded to the DG III Working Party "Fertilisers" its past work on organic fertilisers under the form of a written draft proposal. This draft has been selected by the DG III experts as their basic working document at the end of 1993 and is now being actively processed. Technical Committee experts contribute discussions and to the elaboration of the corresponding draft directive through the Chairman of the Task Force acting as observer.

Organo-mineral fertilisers present a slightly different picture in that all Technical Committee work will be done under a formal study mandate from the Commission to CEN. National experts from all interested parties which include industry, standardisation and national regulatory bodies will thus have the task of formalising their views through the CEN channel before regulatory action is undertaken by the Commission.

It is also quite clear that specifications entail analytical methods for checking. Therefore, at the same time as the Task Force elaborates specifications, it considers relevant analytical methods. As it is a longstanding position of the Commission that, whenever possible, analytical matters should be handled through CEN standards elaborated under a mandate, more analytical work is in store for the Technical Committee.

- Slow-release fertilisers

This item has been chosen by the Technical Committee in order to bring some transparency into an area where claims made by some fertiliser "marketeers" are more than confusing for the customer and sometimes substantiated by nothing more than a high asking price. This is a very complex field which had to be narrowed by the relevant Task Force to make things amenable to reasonable standardisation.

The most advanced item today is a draft standard, now under evaluation, to assess nitrogen nutrient release through a physical barrier. It is a conventional method in that it is designed to simulate in a short time, in a laboratory, under predefined conditions, what happens actually in the field within 2-3 months.

- Liming Materials

In the area of liming materials no harmonisation of national regulations has been attempted by the Commission yet, and it is unlikely that anything will be done in the future, probably due to the low amount of transboundary trade inside the European Union and practically none outside the Union. Producers however are keen to have at least some degree of harmonisation since this would enable them to trade more easily outside their national borders. All interested parties consider that standardisation in this area is very important to them and to CEN since they would be able to demonstrate that harmonisation can be obtained without regulatory intervention.

This harmonisation is a daunting task for experts in the field of product designations and specifications due to differing national philosophies but also due to conflicting industrial and market interests. Work is nevertheless progressing satisfactorily. The related analytical part is much easier since existing methods are very similar, with the exception of an item called "reactivity" which is a method designed to evaluate conventionally the "speed" of soil pH increase or the "speed" of the neutralisation response to any liming material application.

CONCLUSION

Establishment or amendment of regulations under normal conditions is a lengthy and complex process. It tends to become more so when harmonisation is attempted as is the case of the European Union. Technicalities have to be overcome, in which case lobbying is not a very efficient way of handling complex industrial matters since information follows usually a one-way path.

In the case of European fertiliser regulations, the existence of the "New Approach" coupled with the existence of the CEN Technical Committee 260 "Fertilisers and Liming Materials" and the exchange of observers, will undoubtedly accelerate the process while allowing industry contribution.

Existing manpower and financial constraints have to be weighted against industry's commitment to contribute to the establishment of efficient and effective harmonised rules while promoting product quality through standards.