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# Fertiliser and Stockfeed Acceptability Statement

Australian fertiliser company Incitec Pivot Fertilisers is committed to providing products and services that meet customer needs. Manufacturing a wide range of fertilisers in Australia, Incitec Pivot Fertilisers also sources products from other Australian suppliers and overseas to offer a comprehensive product range.

In Australia, fertilisers must meet certain standards and be labelled in accordance with State Fertiliser Acts. Fertilizer Australia, the Australian fertiliser industry association, has also developed a “Code of Practice for Fertilizer Description and Labelling” for use by members.

Incitec Pivot Fertilisers has set specifications for domestically manufactured and imported fertilisers that meet these standards. Routine laboratory analyses are performed to ensure products meet these specifications. Farmers not only want to know that products they are buying are suitable for the intended use, they are also looking for advice on how to use them. Incitec Pivot Fertilisers is a Fertcare<sup>®</sup> accredited organisation. The company’s agronomists and sales advisory staff are Fertcare<sup>®</sup> accredited.

Incitec Pivot Fertilisers also operates a soil, plant tissue and water analysis laboratory. This service participates in the Australasian Soil and Plant Analysis Council (ASPAC) proficiency scheme and has most of its analytical procedures accredited by the National Association of Testing Authorities (NATA).

## Rural Industry Certification and Accreditation Programs

### “Approved Suppliers”

Food processors and supermarket chains often require farmers and graziers to implement Quality Assurance (QA) programs. Freshcare, the horticultural industry’s farm assurance program, is an example. As part of such programs, farmers are required to seek quality assurances from their suppliers of services and materials, including planting materials, soil ameliorants, fertilisers and chemicals, and only source these from approved suppliers that meet agreed specifications.

This brochure covers those topics that farmers and graziers most commonly raise with fertiliser suppliers. It provides information on Incitec Pivot products and the company’s commitment to primary producers in the production of clean and safe food.

## Domestic Fertiliser Manufacture

Incitec Pivot Fertilisers operates several manufacturing facilities throughout Australia.

- DAP, MAP and Granulock® Z, a zinc enriched ammonium phosphate fertiliser, are manufactured at Phosphate Hill in north west Queensland using locally mined phosphate rock.
- Anhydrous Ammonia (BIG N®), urea, and granulated ammonium sulfate (Gran-am®) are manufactured in Brisbane.
- Single superphosphate (SuPerfect®) is manufactured at Geelong in Victoria.

Production from these facilities is monitored through the company's own Quality Control Laboratories.

## **Fertiliser Imports**

Incitec Pivot Fertilisers supplements local production with imports of several fertiliser products including urea, calcium ammonium nitrate (Cal-Am), DAP, MAP, Muriate of Potash, Sulfate of Potash, urea ammonium nitrate solution (EASY N), compound and trace element fertilisers.

Imported fertilisers are sourced in compliance with the Fertilizer Australia Purchasing Code of Practice. Product Specifications are set that meet statutory limits and market needs. Certificates of Analysis are sought from suppliers.

The quality of these products is monitored by taking routine samples that are analysed through Incitec Pivot's own Quality Control Laboratories to ensure they meet analysis and are within specification, e.g. maximum limits of heavy metal impurities such as cadmium, lead and mercury.

## **Quality Assurance (QA)**

Internal quality control systems are in place for fertilisers but external auditors are not engaged to accredit the processes, with the exception of some products manufactured in Brisbane, which have dual uses as industrial products, e.g. Anhydrous Ammonia and Urea. These products are Quality Assured to AS/NZS ISO 9001:2000 standards.

## **Certificates of Analysis**

Incitec Pivot Fertilisers does not provide a Certificate of Analysis for individual despatches of fertiliser (and products that have dual uses as stockfeed supplements) into the Australian agricultural market. This is only done for bulk export shipments of fertiliser. The guaranteed analysis of Incitec Pivot products is stated on the product label.

## **Product Labels (Bag Tags)**

For fertiliser that is supplied in 25 kg packs, the label information is either shown on the package, or affixed to the package at the time it is filled.

- For Flexible Intermediate Bulk Containers (Bulk Bags), a Bag Tag is inserted into the pouch on the Bag.
- For liquid fertilisers in IBCs, the label is attached to the Pallecon.
- For bulk deliveries, a copy of the Bag Tag is attached to the Delivery Advice.

The label gives the analysis of the fertiliser, and the forms in which the nutrients are present. The label also specifies the maximum concentration at which impurities are present, as required under State fertiliser legislation.

## Fertiliser Impurities

Fertilisers contain various impurities. These are mostly derived from the raw materials used in their manufacture. Some impurities, such as biuret in urea, are formed during the manufacturing process. Some of these impurities may accumulate in soils or plants, affecting the health of plants or grazing animals. Others potentially affect food safety and human health, and the marketability of farm produce.

Regulatory controls and industry standards have been set for these impurities, chief among which are:

- Biuret in urea and its cumulative effect on crop foliage when sprayed repeatedly during the growing season;
- Fluoride (F) in phosphorus fertilisers (>2% P) and its potential impact on grazing animals if ingested with forage following their application to pasture, or if used inappropriately as a direct mineral supplement for livestock;
- Heavy metal impurities (cadmium, lead and mercury) in phosphorus fertilisers and metallic trace elements. Of particular concern is cadmium in phosphorus fertilisers, and its uptake by vegetables.

Agritopics on “Heavy Metals in Fertiliser and Agriculture” and “Managing Cadmium in Vegetables” are available, in which these issues are discussed in more detail.

## Cadmium

The food standards for cadmium in farm produce are most likely to be exceeded in root and tuber crops, e.g. potatoes, and leafy vegetables. Vegetable crops are usually fertilised with phosphorus at higher rates than other crops.

Potato (and other vegetable) growers should choose fertilisers with as low a cadmium content as possible, certainly no more 150 mg Cd/kg P. If repeated applications of phosphorus are made at high rates, e.g. more than 100 kg/ha P per crop, it is desirable that fertilisers containing less than 100 mg Cd/kg P be used.

In Australia, the maximum allowable concentration of cadmium (Cd) in phosphorus fertilisers is 300 mg Cd/kg P. Incitec Pivot SuPerfect® (single superphosphate) is manufactured to this specification. It is primarily used on pasture.

SuPerfect® must not be used as the sole source of phosphorus when growing vegetables and in other risk situations where food standards for cadmium may be exceeded. Peanuts grown on sandy soils may also exceed the food standard for cadmium. Fertilisers with a lower cadmium content should be used in these circumstances.

As cadmium accumulates in soils, consideration not only needs to be given to the fertiliser used to grow crops most at risk of violating the food standards for cadmium, but also to that used in crops grown in rotation with them.

The high analysis phosphorus fertilisers marketed by Incitec Pivot Fertilisers, e.g. DAP and MAP, are low in cadmium compared to SuPerfect®. The Incitec Pivot MAP and DAP produced at the company’s facility at Phosphate Hill in northwest Queensland, and that imported from overseas, typically contain less than 50 mg Cd/kg P. Incitec Pivot MAP has a maximum label specification of 75 mg Cd/kg P. This allows for the occasional importation of product containing between 50 and 75 mg Cd/kg P (Max.).

All the complete NPK blends on the Incitec Pivot Fertilisers product range that have been formulated for use in vegetable crops contain less than 150 mg Cd/kg P.

### **Microbial Contaminants**

Microbial contamination of farm produce, where it occurs, is often attributed to the use of untreated organic wastes, e.g. manures, close to planting or during the growing season. Freshcare guidelines stipulate that such materials should not be applied within 90 days of harvest, or 180 days of the intended harvest date where the harvestable part of the plant is grown in or in direct contact with the soil, has an edible skin and is generally eaten uncooked.

The provisions relating to microbial contamination do not apply to Incitec Pivot products as they are free of organic material. The fertilisers marketed by Incitec Pivot Fertilisers are classified as inorganic. They are obtained/derived from:

- Naturally occurring ores, e.g. Muriate of Potash;
- The processing of mineral ores, e.g. the acidulation of phosphate rock, to improve the availability of nutrients for plant root uptake, e.g. superphosphate;
- Or are chemically synthesized, e.g. ammonia and urea.

Dried pelletized poultry manure is stocked at some Distribution Centres for use in blends manufactured on behalf of other companies. Similarly, some microbial biostimulants are applied to fertilisers on behalf of other companies at some distribution centres. Poultry manure is not used in any of the blends listed on Incitec Pivot Fertilisers' product range.

### **Pesticide Contamination**

Maximum Residue Levels (MRLs) have been set for farm produce, to ensure that farm chemicals are used as directed on the label.

The only agricultural chemicals added to Incitec Pivot Fertilisers' products are fungicides, e.g. Flutriafol, for the control of soil-borne fungal diseases in grain crops. When fungicide is added to a planting fertiliser, it is designated on the product label.

Nitrification and Urease Inhibitors are added to some nitrogen fertilisers. These inhibitors are not classified as Pesticides (Agricultural Chemicals).

### **Allergens**

An allergen is a substance that can cause hypersensitive immune response (allergic reaction) in some consumers. The reaction may potentially be life-threatening after exposure by ingestion, inhalation or contact with the skin.

Some people may develop allergies to certain foods or food ingredients including peanuts, tree nuts (e.g. cashews, almonds, walnuts), shellfish, finned fish, milk, eggs, wheat (and gluten), sesame and soybeans and their derivatives, and sulfite preservatives at concentrations above 10 mg/kg.

As part of their Quality Assurance programs, farmers are required to ensure farm produce is not cross contaminated with other known allergens. Incitec Pivot Fertilisers' products do not contain any of the allergens listed above. Even if they did, their presence in soil-applied fertiliser is unlikely to cause contamination of farm produce (food).

People with sensitive skin may suffer irritation to the skin, eyes and nasal passages from direct contact with or exposure to fertiliser dust or mist while handling and applying fertilisers. These conditions are not classified as allergies.

## **Mineral Supplements for Livestock**

Some, but not all Incitec Pivot products may be used as non-protein nitrogen and mineral supplements for ruminants (cattle, sheep). These include:

- Urea (Granular Urea, Prilled Urea, Stockfeed Urea);
- Gran-am;
- Muriate of Potash.

Incitec Pivot Prilled Urea and Stockfeed Urea have a smaller particle size than Granular Urea, so they dissolve more readily in water when preparing licks. Prilled Urea is available in north Queensland, Stockfeed Urea out of Brisbane (Gibson Island).

The maximum impurity concentrations for fluorine, cadmium, lead and mercury in these products are detailed on the product label, and are within statutory requirements.

The granular phosphorus fertilisers marketed by Incitec Pivot Fertilisers, e.g. DAP, MAP, and SuPerfect<sup>®</sup>, must not be used as phosphorus supplements. These products are too high in fluorine (F) for direct mineral supplementation to livestock.

## **Storage Life and Use-By Dates**

Expiry dates are not applicable to the fertilisers marketed by Incitec Pivot Fertilisers except for some products containing inhibitors, e.g. Green Urea NV. Fertilisers do not change chemically with the passage of time. Their nutritive value remains unchanged. Solid fertilisers may change physically, which can make them difficult to apply. Fertilisers may absorb atmospheric moisture, causing them to cake. They are also prone to pressure setting in storage.

Fertilisers vary in their storage characteristics. Some products, such as Incitec Pivot Cal-Am, have a low Critical Relative Humidity, which makes them more likely to absorb moisture. Such products should be ordered as required, and used quickly. They should not be stored for extended periods of time. Blends have poorer storage characteristics than straights.

Similarly, nutrients are not lost from liquid fertilisers such as Urea Ammonium Nitrate Solution, i.e. EASY N, in storage. Salting out may occur at low temperatures or if water is lost from the fertiliser solution through evaporation.

The packaging of solid fertilisers may degrade over time. Woven polypropylene (WPP) fertiliser packs deteriorate if exposed to sunlight.

## **Nutrient Advantage**

Incitec Pivot Fertilisers has Australia's oldest commercial soil testing service, with antecedent companies having operated laboratory services since 1963. The Nutrient Advantage Laboratory is located at Werribee in Victoria. It is equipped to process more than 100,000 soil, plant tissue and water samples per year.



The laboratory is accredited by the National Association of Testing Authorities (NATA) and operates in accordance with the international standard ISO/IEC 17025.

The laboratory's scope of accreditation is freely available on the NATA website [www.nata.asn.au](http://www.nata.asn.au) under Accreditation No: 11958.



In order to meet a requirement of NATA accreditation the laboratory regularly participates in inter-laboratory proficiency studies coordinated by the Australasian Soil & Plant Analysis Council (ASPAC). The Nutrient Advantage Laboratory is certified by ASPAC as meeting the proficiency criteria for a wide range of soil and plant nutritional assays.

Management and staff at the Nutrient Advantage Laboratory are committed to generating high quality analytical results in a timely fashion to support fertiliser application recommendations.

NA Pro, the Nutrient Advantage decision support system, is used to report laboratory results and recommend nutrient rates and products to customers. The company's agronomists developed this software program. It is based on many years of research, consultation with Government researchers and advisers, and experience.

### **Fertcare®**

The Fertcare® program is a joint initiative between the Australian Fertiliser Services Association (AFSA) and Fertilizer Australia. This national training and accreditation program aims to ensure that farmers receive consistent and quality advice on using fertilisers for optimum production, protection of the environment and food safety.

Incitec Pivot Fertilisers is Fertcare® accredited organisation. Key staff in the sales and Distribution teams are Fertcare® accredited. Company Agronomists undertake Fertcare® training soon after being appointed to an advisory position.

Fertcare® accredited advisers are independently assessed and audited. This helps ensure that the detailed plant nutrition advice that they provide, based on soil and tissue testing, takes account of environmental and food safety issues and is based on the best available science.

Incitec Pivot Fertilisers (a business of Incitec Pivot Ltd ABN 42 004 080 264)  
28 Freshwater Place  
Southbank Vic 3006

Freecall 1800 009 832  
[www.incitecpivotfertilisers.com.au](http://www.incitecpivotfertilisers.com.au)