



Knowledge grows

Yara's Guide to the Safe Use of Fertilizers on Farm





Yara's guide to the safe use of fertilizers on farm

Yara operates a Product Stewardship programme to ensure that proper care is taken along the whole fertilizer value chain from product development, purchase of raw materials and manufacturing right up to the end delivery and use on the farm. Through this programme Yara is fully committed to give proper advice to ensure the health and safety of its partners and customers as well as addressing environmental issues, safe food production and security against theft and misuse.

The purpose of this brochure is to highlight safety issues that arise when using fertilizers on the farm and specifically to provide advice on:

- Personal safety when handling fertilizer products;
- Good housekeeping practice for inside and outdoor storage;
- The need for security when storing fertilizers;
- Minimising environmental impact during storage and use;
- The importance of reading product labels and supplier Safety Data Sheets.
- Updated product labeling information resulting from the introduction of the European Classification, Labelling and Packaging Regulation. Regulation (EC) No.1272/2008.

Contents

1.	Take care of your safety	2
2.	Maintain Good House-keeping Practice in Storage.....	3
3.	Take Care of Security.....	8
4.	Take Care of the Environment.....	10
5.	Responsible use of Fertilizer.....	11
6.	Read the Label.....	13
7.	Notification of Ammonium Nitrate Storage.....	16
8.	Associations and Certifications.....	19



1. Take Care of Your Safety

Safe Handling of Fertilizers

- Protecting your body when handling a chemical product is always recommended whether the product is classified as hazardous or not. Avoid direct contact with skin and eyes.
- Always read the label on the package (see the Read the Label chapter on pages 13 and 14). It contains important information on the potential hazards and how to minimize the associated risks.
- Detailed health and safety information is provided in the product Safety Data Sheet; available through your Yara distributor or the Yara website.

Safe Handling of Packages

Lifting and moving Big Bags and pallets

- Beware of overhead hazards
- No one should stand beneath or close to the load when it is being lifted, moved or emptied.
- The lift should be smooth and vertical
- Once lifted, complete the task and do not leave the load hanging in the air.
- Equipment used for lifting big bags must have smooth rounded edges to avoid the lifting loop being damaged.
- The load must not be allowed to slide along the tines (forks) of the lifting equipment.
- Particular care should be taken when cutting the bag, i.e. use a long-handled knife.

Lifting and moving Small packages (manual handling)

- Do not lift or handle excess weight. Heavy lifting and handling can cause injury.
- Adopt a stable position, feet shoulder width apart and get a good hold.
- Keep the head up and back straight when lifting and handling.
- Once load has been lifted adjust hand position to ensure a firm grip.
- When carrying, keep the load close to the body and waist.
- Don't flex the back any further while lifting.
- Avoid twisting the back or leaning sideways when lifting or carrying.
- Move smoothly.
- Put the package down first, then adjust its position.



2. Maintain Good House-keeping Practice in Storage

Good storage and house-keeping practices are always important to ensure a safe workplace. In addition, they will assure the quality of the product and minimize the potential for any deterioration. Where possible, fertilizers should be stored undercover in a closed, secure storage place to protect the product from the weather (sun, rain etc.) and reduce the risk of theft. Follow good housekeeping practices, cleaning up spillage and keeping walls, floors and equipment clean. Avoid leaks from handling equipment e.g. fuel, oil and hydraulic fluid, and ensure no contact with the product. Avoid damaging the packaging during handling to maintain the product quality.

Do

- ✓ Adhere to all regulations
- ✓ Record particulars of supplier, delivery and any other relevant information, for traceability, security and safety purposes
- ✓ Store handling machinery separately from the fertilizer
- ✓ Make sure that vehicles are well maintained and free from oil leaks
- ✓ Extinguish any product decomposition with copious amounts of water at the seat of decomposition. Use respiratory protective equipment

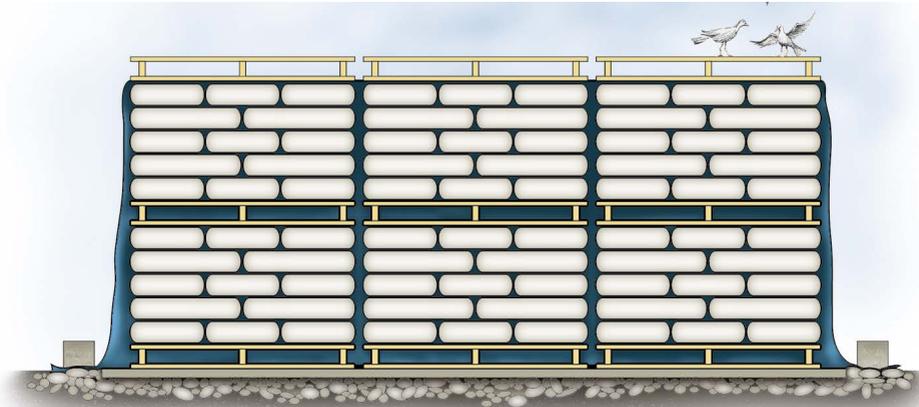
Do Not

- ✗ Store ammonium nitrate and other fertilizer products near to chemicals, oil, pesticides or combustible materials (e.g. wood, paper, plastics, hay, and straw); there may be a risk of chemical reaction or fire
- ✗ Store different fertilizers in the same stack
- ✗ Store close to heating systems and other potential sources of heat such as fuel tanks and oil drums; evaluate and use specific fire control features e.g. provision of double-wall tanks or underground location
- ✗ Permit smoking, welding or burning and use of open fires close to fertilizers

Inside storage

- The store should preferably be single storey, constructed of not-readily combustible material (e. g. concrete, brick, steel)
- All buildings should have adequate provisions for ventilation to help dissipate heat and discharge fumes in a fire or decomposition
- The floor should have a level, dry and even surface, free from potholes. Where there is a risk of bagged fertilizers being in contact with wet ground in the store, the bags should be stored on pallets
- Do not store materials which are incompatible near each other e.g. urea near ammonium nitrate based fertilizers; keep them well separated





Outside storage

- Store on a raised level, well-drained, dry and smooth surface
- Use a pallet beneath the bags to prevent direct contact with the ground and the water (i.e. in case of heavy rain).
- In order to preserve product quality, place a layer of empty pallets on top of the stack prior to sheeting to prevent product deterioration due to heat effects
- All product stored outside should be protected from the elements by covering with a tarpaulin. The tarpaulins should cover all the product and be roped securely to avoid wind damage



Stack Construction

- Limit the height of fertilizer stacks. High stacks of bagged or palletized fertilizer can be unstable and may collapse. Yara recommends that Big bags or pallets must not be stacked more than three high
- Limit the size of stacks of bags to 300 tonnes for straight ammonium nitrate (>28%N)
- Store at least 1 metre away from building eaves and beams and, in the case of bagged fertilizer, also from walls.
- Leave at least a 1 metre gap in between stacks
- Only big bags and pallets in perfect condition must be used to construct stacks
- All stacks should be constructed on a firm, dry level ground with good drainage. Stacks which are not built on a level surface can be very dangerous and prone to collapse
- Big bag stacks should be constructed in a pyramid format as shown in the photograph below. The 2nd and 3rd layer bags sitting astride of the four bags below
- All big bag stacks stored outside should be built on a bed of wooden pallets. Pallets used for this purpose must be in good condition and free from splinters and nails
- Stacks should not lean, if they do, rebuild them immediately
- If a big bag has been damaged in a stack then under no circumstances shall an operator approach the bag until a suitable risk assessment has been undertaken. It has been known for the bag above a damaged bag to become unstable and fall fatally injuring an Operator. The stack shall be dismantled by Forklift and the damaged bag removed mechanically for disposal taking into consideration the weakness in the packaging material



Stack Sheeting

- You should carry out your own risk assessment to identify any control measures necessary to safeguard those sheeting and desheeting stacked fertilizer
- Exercise great caution when sheeting and desheeting stacks
- Sheeting and desheeting of stacks should be carried out in good weather conditions
- When desheeting stacks, verify the stability of the stack before untying the sheets
- Sheets may become coated with algae. This is slippery and potentially hazardous
- In cold weather, sheeted stacks may be covered in ice. This is frequently heavy and sharp. Falling ice blocks are

extremely hazardous. Ice is slippery and potentially hazardous.

- NEVER wrap sheeting ropes around hands or fingers. The surface area of a sheet is large and a gust of wind is easily capable of lifting a person off the ground or severely injuring the hands and fingers. Use gloves when sheeting

Transportation

- Loads must be secure before transporting fertilizer bags
- Care must be taken to avoid any spillage of product
- Product should be covered/sheeted during transport



3. Take Care of Security

This 5 point advice plan for farm security has been developed by National Counter Terrorism Security Office (NaCTSO,) Agricultural Industries Confederation (AIC), National Farmers Unions (NFU & NFUS), Health & Safety Executive (HSE) and Defra

1. Use a supplier approved by the Fertilizer Industry Assurance Scheme (FIAS).
2. Keep the fertilizer in a secure area or sheeted away from public view.
3. Carry out regular stock checks and report any loss to the police immediately (call 101).
4. Do not leave fertilizer in fields overnight.
5. Do not sell ammonium nitrate without seeing the correct documentation.

In addition, Yara has “The 10 point code” for securing fertilisers

- ✓ Do purchase your fertiliser from a FIAS approved supplier
- ✓ Do retain and file all fertiliser delivery notes
- ✓ Do wherever possible, and with regard to HSE safety guidelines, store fertiliser inside a locked building or compound
- ✓ Do fully sheet fertiliser when stored outside and regularly check to ensure that the stack has not been tampered with
- ✓ Do carry out regular stock checks
- ✓ Do report any stock discrepancy or loss to the police immediately
- ✗ Do not store fertiliser where there is public access
- ✗ Do not leave fertiliser in the field overnight
- ✗ Do not store fertiliser near to, or visible from the public highway
- ✗ It is an offence to sell-on ammonium nitrate fertiliser without the proper certification

The EU Regulation on the marketing and use of explosives precursors (No 98/2013)

- Regulation came into force 2nd September 2014
 - Applies to fertilisers containing nitrogen (N)
 - Requires Suspicious Transactions to be reported
- Examples of reportable Suspicious Transactions are where the :
 - customer appears unclear about the intended use, appears unfamiliar with the intended use or cannot plausibly explain it
 - customer wants to buy unusual quantities, unusual concentrations or unusual combinations of substances
 - customer is unwilling to provide proof of identity or place of residence, or insists on using unusual methods of payment including large amounts of cash
 - product disappears or is stolen
- Report Suspicious Transactions to the Anti-Terrorist Hotline on 0800 789321 or e-mail to chemical.reporting@met.police.uk.
- Any significant disappearances or thefts must be reported to the local police force using 101 (or 999 in an emergency).



Outdoor storage of bags

4. Take Care of the Environment



Fertilizer storage and handling

Good storage and handling procedures for fertilisers will minimise the risks of causing water pollution. You should place storage facilities as far as possible from any ditch, surface water or drainage system. Stores should be at least:

- 10 metres from drains, ditches and surface waters
- 50 metres from springs, wells or boreholes

For fluid fertilizer storage tanks, the Environment Agency strongly advises that suitably designed and constructed secondary containment is provided.

Recycling of packaging

Fertiliser bags can be re-used on the farm but eventually they will need to be disposed of or preferably recycled. Packages should be emptied by shaking clean to remove fertiliser residues.

There are national guidelines that need to be followed regarding the recycling of packaging materials.

Typical points to consider are :

- Minimize the amount of waste packaging by using a pack size appropriate to the quantity of product required.
- Do not reuse empty packaging (bags) for refilling with fertilizer
- Empty, triple rinse and drain all liquid product containers; dispose of rinse water safely, preferably into the spray tank at the time of use
- Fully empty out powder packaging
- Segregate the emptied packaging material according to its type
- Look for the appropriate symbols when recycling

5. Responsible Use of Fertilizer

Losses of nitrogen from agriculture has significant impacts upon the quality of water, soil and air. You should use nitrogen as efficiently as possible and minimise losses.

If you farm in a Nitrate Vulnerable Zone (NVZ) you must follow mandatory rules on the quantity and timing of applying nitrogen fertilisers. To find out if you are in an NVZ, see the Environment Agency's interactive maps (<https://www.gov.uk/nitrate-vulnerable-zones>). For Scotland, further information can be found at <http://www.netregs.org.uk/legislation/scotland.aspx>.

Best Practice: Minimising Nitrate Loss

You should:

- Apply inorganic nitrogen fertilizer only at times when the crop can use the nitrogen. You should not apply it to grass between 15 September and 15 January and to other crops between 1 September and 15 January unless there is a specific crop requirement at this time. For Scotland, manufactured nitrogen fertilizer must not be applied to crops and grassland during the periods identified in the table opposite:

Scotland: Name of NVZ	Grassland	Other Land
Moray, Aberdeenshire, Banff & Buchan NVZ	15th September to 20th February	1st September to 20th February
All other NVZ areas	15th September to 15th February	1st September to 15th February

- Spread nitrogen fertiliser as accurately as possible and at the right rate. You should not apply it directly to surface waters (including ditches).
- Not spread nitrogen fertiliser within 2 metres of surface water. Establishing managed buffer strips will help you protect surface water (as well as hedges and other sensitive habitats) from fertilisers.
- Take special care when applying any nitrogen fertiliser to fields where there is a significant risk of run-off to surface water, taking into account in particular the slope of the land, weather conditions, ground cover, proximity to surface water, soil conditions and the presence of land drains.
- Not apply nitrogen fertiliser when the soil is waterlogged, flooded, frozen hard or snow-covered.

1. Calculating the correct amount to apply

Yara fertilizer management analysis tools and software are available for calculating the appropriate amount of fertilizer to use according to the crop being grown.

- Yara N-Plan
- Yara Nutrient Management Plan



2. Assessing the correct time to apply

Yara recommendations include advice on when to apply the fertilizer to maximize the plants uptake, reducing losses to the environment.

- Yara N-Plan
- Yara Crop Programs.



3. Applying the product as accurately as possible

Poor application of fertilizer leads to poor crop performance and waste.

This can be avoided by following the guidelines below before every application is made:

- Check the spreader for general 'wear and tear', replacing parts where appropriate and follow the manufacturers maintenance advice.
- Use the suggested spreader settings for each individual fertilizer product and tray test this setting prior to application. Make adjustments to give a low Coefficient of Variation.
- Regularly recheck the settings to ensure consistency of application.
- Where equipment for calibration is unavailable use an appropriate spreader calibration service business.
- Record and file all maintenance and calibrations with fertilizer field records.



6. Read the Label

All Yara products are labelled in accordance with the national laws that are in force in the destination country and with international regulations. The table below shows how the hazards are communicated through the label on some of our main products.

Hazard Symbols	Hazard Type	Precautions to be Taken	Fertilizer Type
	<p>Danger. Causes serious eye damage. Harmful if swallowed.</p>	<p>Wear protective gloves and eye protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor /physician. IF SWALLOWED: Call a POISON CENTER or doctor /physician if you feel unwell. Rinse mouth.</p>	<p>Calcium Nitrate</p>
<p>UN 2067 Ammonium Nitrate Based Fertilizer</p>	<p>Warning. May intensify fire; oxidiser. Causes serious eye irritation.</p>	<p>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store away from combustible materials and chemicals. Wear eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. In case of fire: Use flooding quantities of water to extinguish.</p>	<p>Ammonium Nitrate based fertilizers with N>28%</p> <p>NPK and NKS with N >27%</p>

Hazard Symbols	Hazard Type	Precautions to be Taken	Fertilizer Type
	Warning. Causes serious eye irritation.	Wear eye protection. Wash hands thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical attention.	Calcium Chloride plus certain NPK, NK and NKS
 UN 1759 Corrosive solid, N.O.S. (urea phosphate).	Danger. Causes severe skin burns and eye damage.	Do not breathe dust. Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.	Urea Phosphate
 UN 1486 POTASSIUM NITRATE  UN 2067 Ammonium Nitrate Based Fertilizer	Warning. May intensify fire; oxidiser.	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store away from combustible materials and chemicals. In case of fire: Use flooding quantities of water to extinguish.	Potassium Nitrate NS fertilisers with N>28%
	Danger. Causes serious eye damage.	Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.	Superphosphates Triple Superphosphate.

The CLP Regulation is the new European Regulation on Classification, Labelling and Packaging of chemical substances and mixtures. This legislation introduces a new system for classifying and labelling chemicals throughout the EU and is based on the United Nations' Globally Harmonised System (UN GHS).

CLP aims to ensure that information on the hazardous properties of chemicals is available in order to enhance the protection of human health and the environment during the handling, transport and use of chemicals.

It is the duty of the industry to identify the hazards of chemicals before these are placed on the market, and to classify them accordingly. In case a product is hazardous, it has to be labelled so that workers and consumers know about its effects before they handle it.

In addition to the labelling on packages the product Safety Data Sheets will also provide this information. Safety Data Sheets can be found at www.yara.co.uk



7. Notification of Ammonium Nitrate Storage

Legislative Requirements for fertilizers containing Ammonium Nitrate

Quantity	Local Fire Authority	HSE	Local Planning Authority
<24 tonnes			
Up to 149 tonnes	Y ¹	Y ¹	
> 150 tonnes	Y ¹		
> 1000 tonnes	Y ¹		Y ²
> 1250 tonnes	Y ¹	Y ³	Y ²
> 10 tonnes (off spec AN)		Y ³	

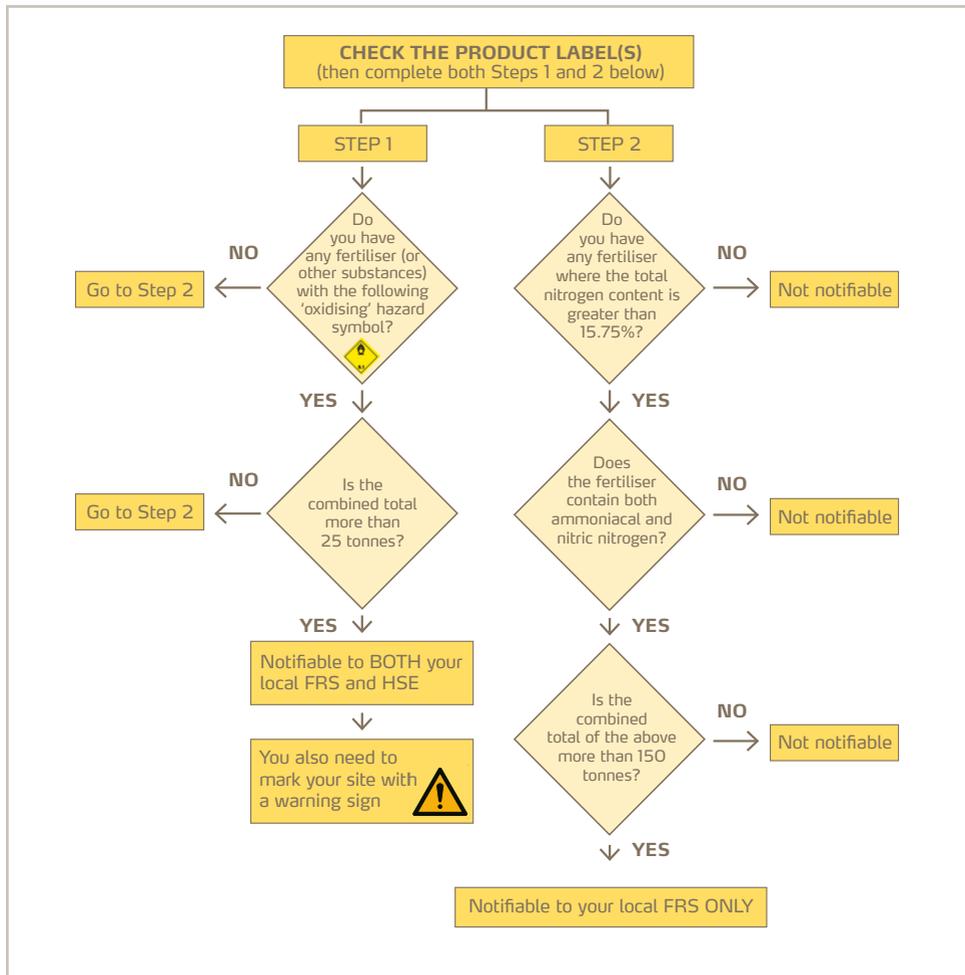
- 1) The Dangerous Substances(Notification and Marking of Sites) Regulations 1990
 - a. For further details see Page 17.
- 2) The Planning (Hazardous Substances) Regulations, 1992 (as amended)
 - a. For any fertilizer containing nitrogen from ammonium nitrate greater than 28%
- 3) Control of Major Accident Hazards (COMAH) Regulations/Seveso Directive

For any fertilizer containing nitrogen from ammonium nitrate greater than 28%

 - a. For any fertilizer containing nitrogen from ammonium nitrate greater than 28%
 - b. For non EU fertilizer, note threshold is 350 tonnes.

The Dangerous Substances (Notification and Marking of Sites) Regulations 1990 (NAMOS) aims to ensure that firefighters arriving at an incident are warned of the presence of dangerous substances. The flow diagram below outlines the requirements for notifying storage of:

- Dangerous substances (STEP 1)
- Relevant ammonium nitrate mixtures (STEP 2)



If the site is required to notify, the following information is required to be provided to the HSE and local FRS (fire and rescue service) (STEP 1) or local FRS (STEP 2):

1. The name and address of the person making the notification.
2. The full postal address of the site.
3. Simple details of the business at, or planned for, the site.
4. The planned or estimated date such quantities will be present.

5.
 - a) For the presence of over 25 tonnes of dangerous substances (Step 1):
 - Classification of dangerous substances which are liable to be present at the site.
 - b) For the presence of over 150 tonnes of ‘relevant ammonium nitrate mixtures’ (Step 2):
 - The total quantity of ‘relevant ammonium nitrate mixtures’ at or above 150 tonnes, which is present, or is likely to be present at the site.

Non flammable compressed gas	<input type="checkbox"/>	Oxidising substance	<input type="checkbox"/>
Toxic gas	<input type="checkbox"/>	Organic peroxide	<input type="checkbox"/>
Flammable gas	<input type="checkbox"/>	Toxic substance	<input type="checkbox"/>
Flammable liquid	<input type="checkbox"/>	Corrosive substance	<input type="checkbox"/>
Flammable solid	<input type="checkbox"/>	Harmful substance	<input type="checkbox"/>
Spontaneously combustible substance	<input type="checkbox"/>	Other dangerous substance	<input type="checkbox"/>
Substance which in contact with water emits flammable gas	<input type="checkbox"/>		

Contact details for all UK local FRS can be found at :
<http://www.fireservice.co.uk/information/ukfrs>

8. Associations and Certifications

The AIC

Yara is a member of the AIC.



The Agricultural Industries Confederation (AIC) is the leading trade association in the agrisupply industry. Formed in October 2003 between the mergers of three existing trade associations the AIC has over 300 Members in the agrisupply trade and represents £6.5 billion turnover at farm gate.

Fertilizer Industry Assurance Scheme (FIAS)

Yara is a certified FIAS participant



FIAS is an industry scheme, developed with Defra, to improve fertilizer security, safety and traceability in the supply chain. Yara UK is independently audited annually against the scheme standard and has been a certified participant since 2007.

EFMA Product Stewardship

Yara uses the principles of Product Stewardship to guide all our activities.



Yara has been committed to the principles of Product Stewardship established by the European Fertilizer Manufacturers Association (EFMA) in 2003, with compliance verified by independent auditors. Product Stewardship ensures that proper care is taken along the whole fertilizer chain from product development and purchase of raw materials, through production, storage and distribution, to sales, delivery and use on the farm.

Customer Satisfaction

Yara is committed to delivering customer satisfaction.

As part of our HESQ (Health, Environment, Safety & Quality) activity and commitment to continuous improvement Yara surveys customers every two years and acts on the findings. Written questionnaires are sent out and the responses independently analysed and the findings discussed and acted on by the Management Team.

REACH

Yara is committed to meeting its REACH obligations

The European Regulation REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) came into force on the 1st of June 2007, with the objective to improve the protection of human health and environment.

Besides the increased testing of chemicals there will also be an increased demand in the European market for exchange of information between suppliers, customers, producers, importers and Competent Authorities.

Yara is participating in REACH Task Forces established by the European industry associations Fertilizers Europe, EIGA and CEFIC for meeting the requirements in a cost efficient manner.

ISO 9001, ISO 14001, OHSAS 18001

Yara is committed to achieving ISO 9001 and ISO 14001 and OHSAS 18001 certification at all its global plants/operations.

ISO 9001 is part of the ISO 9000 family of standards for quality management systems maintained by ISO, the International Organization for Standardization and is administered by accreditation and certification bodies who verify activities through audits. The rules are updated as the requirements motivate changes over time. Yara UK has achieved ISO 9001 certification since 1994. ISO 14001 was first published as a standard in 1996 and it specifies the requirements for an organisation's environmental management system. It applies to those environmental aspects over which an organisation has control and where it can be expected to have an influence.

OHSAS 18001 is the internationally recognized assessment specification for occupational health and safety management systems. It was developed by a selection of leading trade bodies, international standards and certification bodies to address a gap where no third-party certifiable international standard exists.



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May 2015 (3rd edition)



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