

What is AdBlue?

AdBlue is a high-purity urea solution that chemically reduces NOx emissions from heavy-duty diesel powered vehicles

AdBlue works as an operating fluid for vehicles with Selective Catalytic Reduction (SCR) technology. Today, almost all European heavy-duty vehicle manufacturers are using this technology in order to meet new NOx emission legislation.

The main components of the SCR system are the SCR catalyst, the AdBlue injection unit, the AdBlue tank and the AdBlue dosing control unit. AdBlue is injected into the exhaust system of the catalyst. When the high quality urea reacts with the NOx molecules the exhaust are converted into harmless nitrogen and water, thereby reducing NOx emissions to air outside the vehicle.

AdBlue also reduces diesel consumption by up to 6%, resulting in significant cost-cutting. Average consumption of AdBlue is generally 5% of diesel use - about 1.5 litres per 100 km for motorway driving.



AdBlue may only be used in combination with SCR engines. It is also neither a fuel nor a fuel additive. AdBlue complies with the Standards of ISO 22241, DIN 70070 and with CEFIC regulations to safeguard the correct functioning of SCR equipment. AdBlue is not hazardous or harmful to the environment and is categorised under the minimum-risk category of transportable fluids.





Do's

- ✓ Always fill AdBlue into the AdBlue tank. Both pistol and outlet are clearly marked.
- ✓ Keep your AdBlue equipment clean, and free from dust or dirt.
- ✓ You do not need to wear protective clothing while filling AdBlue.
- ✓ You might want to wear some protection if you are handling large quantities, with danger of spilling.
- ✓ If over heated, AdBlue containers can be chilled with water.
- ✓ Make sure to call for assistance if your tank is not intact.
- ✓ AdBlue freezes at -11°C so this will not be an issue under local conditions !



Don'ts

- ✗ Do not fill AdBlue into the Diesel-tank!
- ✗ Do not fill Diesel into the AdBlue-tank!
- ✗ Do not use AdBlue when contaminated with water or other substances, especially diesel fuel.
- ✗ Avoid spilling AdBlue on the ground, as the surface might get slippery. AdBlue may affect concrete as well as brickwork. If spilled, wash with water.

For more information, visit **www.air1.info**



YARA AUSTRALIA PTY LTD
201 Miller Street, North
Sydney, NSW 2060
Australia

Technical & Administrative queries:
Freecall 1800 775 475 or
(02) 8912 6917
Orders: email: au_orders@yara.com
fax: (02) 9959 4050



All you ever wanted to know about AdBlue®



Air1® is a registered trademark of Yara International ASA. Produced by Yara.
AdBlue® is a registered trademark of the Verband der Automobilindustrie e.V.
To learn more about Air1® -visit: **www.air1.info, www.yara.com.au**

What is AdBlue and how should I use it?

AdBlue is a solution of urea in water (32,5%). It is non-toxic and used to chemically reduce NO_x-emission from trucks and buses powered by diesel engines. AdBlue is contained in a separate tank and sprayed into the exhaust gases.

Never fill the diesel tank with AdBlue.

How much AdBlue will I need?

You will not need to replenish AdBlue every time you refill with diesel. The AdBlue consumption will be about 4% by volume of diesel consumption for Euro IV vehicles, and about 6% for Euro V vehicles. This amounts roughly to an AdBlue consumption of 1.6 litres per 100 km of highway driving.

What if I run out of AdBlue?

If you run-out of AdBlue in the middle of a journey, you should drive to selected filling station or dealership. (Call Freecall 1800 775 475 for availability details) AdBlue is also sold in 10 litre cans that you can use in case of emergency.

Is AdBlue harmful?

AdBlue is not harmful neither for humans nor animals. AdBlue is not explosive. If you get it on your skin or clothes, rinse with plenty of tap water as it might irritate. It is not poisonous, but if ever consumed by accident, drink water and consult a doctor.

Will AdBlue burn?

AdBlue does not burn and will not aid combustion.

Will using AdBlue reduce my costs?

Implementing SCR technology with AdBlue from Air1® is certain to yield a significant cost-cutting effect in terms of fuel consumption. Diesel consumption can be cut down by up to 6 %. In addition, in some countries there are lower toll charges for vehicles equipped with SCR technology.

What makes Air1®'s AdBlue so special?

Air1® is AdBlue by Yara and often the AdBlue you will get when your new truck is delivered to you. Heavy-duty vehicle manufacturers demand a level of purity to honour the warranty they give on their vehicles. Yara is a primary source AdBlue supplier. This guarantees that Air1® will be protected from impurities and thus will not harm your vehicle's catalyst. Other less pure AdBlue potentially can damage your SCR catalyst irreversibly. You will be forced to replace your catalyst at considerable cost if this happens. Choosing Air1® brings you reliability and safety!

Where can I find Air1®?

Air1® is rapidly becoming available from a growing range of Australian filling stations and dealerships. From these locations, you can also buy a 10 litre can to have in reserve, and this will give you up to approximately 600 km of extra driving distance.

Call Freecall 1800 775 475 for availability details.



Air1 is the only AdBlue® supplier offering a quality product and service package with full control of the supply chain from the point of manufacture to delivery.

Guaranteed AdBlue supply

Air1 provides a secure supply of AdBlue from Yara's own production plants at Brunsbittel and Sluiskil, the biggest AdBlue plants in the world. By choosing Air1, you are choosing the global industrial leaders that can guarantee you will never run out of AdBlue.

Top quality directly to your depot

Air1 is produced from a prime Urea solution, giving it an unmatched level of purity. Each batch is verified according to ISO quality standards so you can rest assured that your catalyst will remain in good condition. Air1 offers top quality AdBlue that will maximize your equipment's durability. It comes directly to you with no intermediate dissolving, dilution or blending, eliminating the risk of contamination.

Flexible and customized services
Air1 offers a wide range of packaging options and pumping equipment to meet your needs. Our local Air1 team are available to both train your staff and also to offer support services to help with maintaining the smooth operations of your Air1 storage and dispensing equipment.

For more information, please contact us at:

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Key Benefits of Air1®

Highest AdBlue Quality from Secure Sources:

Yara, Europe's largest manufacturer of urea, has expanded its production capacity in three of its production plants. It now operates the world's largest AdBlue plant in Sluiskil, in the Netherlands. Having first-hand production experience of many years standing, and being a primary source supplier, Yara is able to guarantee the highest and most consistent product quality. Air1® is guaranteed to be fully compliant with both the ISO 22241 and DIN 70070 standards, and also meets with the strict regulations set out by ISO and CEFIC. All this gives you peace of mind by ensuring that your SCR system continues to work effectively and efficiently, and it will not be damaged by inferior product.

Savings on fuel:

Implementing SCR technology and Air1® is certain to yield a significant cost-cutting effect in terms of fuel consumption. Optimised engine combustion leads to greater engine and fuel efficiency. The result is a reduction of approximately 6% in diesel consumption.

Air1 is here to stay:

Yara's origins date back to 1905 and it is now the largest European producer of urea, the source of AdBlue. Your product is supplied by the largest AdBlue plant in the world.

Customer Support:

You will receive the expert support of Air1's engineering infrastructure. Our engineers support a wide range of dispensing and storage equipment.



Air1® is a registered trademark of Yara International ASA. Produced by Yara. Distributed in Europe by Brenntag.
AdBlue® is a registered trademark of the Verband der Automobilindustrie e.V. (VDA).
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A Few tips from Air1® on how to use AdBlue®

- ✓ Always fill AdBlue into the AdBlue® tank. Both pistol and outlet is clearly marked.
- ✓ Keep your AdBlue® equipment clean, and free from dust or dirt. Contamination of the product might destroy your catalyst and force you to replace it!
- ✓ Clean the dispensing pistol with water after filling. This prevents the forming of small crystals.
- ✓ You do not need to wear protective clothing while filling AdBlue®.
- ✓ While handling large quantities of AdBlue® you might consider wearing protective clothing. If you get AdBlue® in your eyes or on your skin, rinse it with tap water immediately. It's harmless, but might irritate. If needed, contact a doctor.
- ✓ In case of a fire, AdBlue® containers can be chilled with water. This will reduce the risk of a bursting container from the decomposing AdBlue® (from a temperature of 80°C and higher). Particles of smoke could spoil the purity of the AdBlue®, so make sure to call for assistance if your tank is not intact.
- ✓ AdBlue freezes at -11°C so this will not be an issue under local conditions !
- ✗ Do not fill AdBlue® into the Diesel-tank!
- ✗ Do not fill Diesel into the AdBlue®-tank!
- ✗ Do not store AdBlue® near food articles.
- ✗ Do not store AdBlue® in direct sunlight or at warm places.
- ✗ Avoid getting AdBlue® on your clothes and skin. But if you do by accident, no worries, it can easily be removed by using tap water.
- ✗ AdBlue® is not for consumption. It is not poisonous, but in case of an accident, drink water and contact a doctor.
- ✗ If spilled, wash with water, as the surface might get slippery. AdBlue® may affect concrete as well as brickwork.
- ✗ Do not flush AdBlue® into the sewer system. Waste AdBlue has to be disposed properly as special refuse.
- ✗ Do not use AdBlue® when mixed with water or other substances, especially diesel fuel.



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Air1® CAN, DRUM, IBC

TECHNICAL DATA



Can

Volume	10 L
Material	HDPE
LxDxH	234x191x326 mm
Weight, empty	0,4 kg
Weight, full	11,3 kg
Connection	Spout
Delivery	50 or 75 cans per pallet



Drum

Volume	210 L
Material	HDPE
DxH	581x935 mm
Weight, empty	8,5 kg
Weight, full	248,3 kg
Connection	BCS 70x6 BCS 56x4
Delivery	4 per pallet



IBC

Volume	1 000 L
Material	HDPE
LxDxH	1200x1000x1160 mm
Weight, empty	76 kg
Weight, full	1166 kg
Connection	Cypherco coupler and valve

Yara reserves the right to change the technical data without further notice





Frequently Asked Questions about AdBlue



What is AdBlue?

AdBlue is a non-toxic aqueous urea solution used to chemically reduce Oxides of Nitrogen (NOx) emissions from heavy-duty diesel powered vehicles. AdBlue is classified under the minimum risk category of transportable fluids. AdBlue is guaranteed to meet the Standards of [ISO 22241](#) and [DIN V 70070](#) and the [CEFIC regulations](#) to safeguard the correct functioning of your vehicle's SCR system.

What are Euro IV and Euro V?

Euro IV and Euro V are standards set by the EU, to control emission of pollutants from heavy-duty vehicles. NOx, particulate matter (PM), hydrocarbons (HC) and carbon monoxide (CO) are the components regulated. Euro IV was implemented from Oct. 2005 to Oct. 2006 and Euro V implementation dates from Oct. 2008 to Oct. 2009.

The Emissions limit for NOx is 3.5 g/kWh in Euro IV and 2.0 g/kWh in EuroV.

What is SCR technology?

SCR stands for Selective Catalytic Reduction. Almost all major European heavy-duty vehicles manufacturers have decided to use this technology to meet the new emission legislation.

The main components of the SCR system are the SCR catalyst, the AdBlue injection unit, the AdBlue tank and the AdBlue dosing control unit. AdBlue is injected into the exhaust pipe upstream of the catalyst where its urea molecules react with heat and water to form ammonia.

When the NOx reacts inside the catalyst with the ammonia, the harmful NOx molecules in the exhaust are converted to harmless nitrogen and water.

What is Air1®?

Air1® is a brand developed by Yara to ensure you a secured supply of the high-quality AdBlue needed in your SCR system. Yara has formed a partnership with one of the worlds largest chemical distributor, Brenntag, to ensure the global supply of AdBlue through Air1®.

Where can I find Air1®?

Air1® is available at public filling stations, truck stops, automatic filling stations and truck dealerships. Yara's partnership with the worlds largest chemicals distributor, Brenntag, offers you the most efficient and economic AdBlue supply. A wide variety of delivery options are offered including IBCs (1000 litre intermediate bulk containers), permanent mini-bulk units (typically 10,000L) and easy to handle 10 litre canisters. We can also supply Air1® in bulk by tanker directly to customers with their own storage tank.



What advantages does Air1® offer?

Air1® offers AdBlue supply from Yara, who are a major global producer of urea, the active ingredient in AdBlue. We can ensure high security of supply from several production plants. Our services also include instruction and assistance so you can rely on us for maximum support.

Air1 is here to stay.

Yara's origins date back to 1905 and the company is major global producer of urea, the source of Air1's AdBlue. Your product is supplied from our own facilities, which includes the largest AdBlue plant in the world.

Customer Support

You receive the expert support of Air1's engineering infrastructure. Our engineers can install and support a wide range of dispensing and storage equipment. Furthermore we offer tank level monitoring using telemetry, technical services, operation training and flexible finance packages.

How much does AdBlue cost?

The price of AdBlue will vary according to quantities delivered.. Reduced fuel consumption of SCR equipped vehicles can more than compensate for the cost of AdBlue.

How much AdBlue will I need?

The average AdBlue consumption is about 4% by volume of diesel consumption for Euro IV and about 6% for Euro V. Roughly this amounts to an AdBlue consumption of 1.7 litres per 100 km of highway driving.



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SAFETY DATA SHEET

Air1®

1. Identification of the substance/preparation and of the company/undertaking

Identification of the substance or preparation

Product name : Air1®
Synonyms : Urea Solution 32.5%

Company/undertaking identification

Manufacturer / Supplier : Yara Australia Pty Ltd
 201 Miller Street, Mezzanine Level
 North Sydney
 NSW 2060 Australia
 Tel: +61 2 9959 4266
 Fax: +61 2 9959 4050

e-mail address of person responsible for this SDS : yaraasiapacific@yara.com

Emergency telephone number : +61 4 1722 3075 (24h)

2. Hazards identification

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See section 11 for more detailed information on health effects and symptoms.

3. Composition/information on ingredients

Substance/preparation : Preparation

Ingredient name	CAS number	%	EC number	Classification
water	7732-18-5	67.5	231-791-2	Not classified.
urea	57-13-6	32.5	200-315-5	Not classified.
See section 16 for the full text of the R-phrases declared above				

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

4. First-aid measures

Ingestion : If large quantities of this material are swallowed, call a physician immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Skin contact : Avoid prolonged or repeated contact with skin. Wash with soap and water. Get medical attention if irritation develops.

Eye contact : In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if irritation occurs.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Extinguishing media** : In case of fire, use water spray (fog), foam, dry chemical or CO₂.
- Hazardous thermal decomposition products** : These products are
carbon dioxide
carbon monoxide
nitrogen oxides
Ammonia.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : Follow all fire-fighting procedures (section 5).
- Environmental precautions and clean-up methods** : Avoid contact of spilled material and runoff with soil and water courses.
- Absorb with DRY sand or other non-combustible material. Use a tool to scoop up solid or absorbed material and place into appropriate labelled waste container. Avoid creating dusty conditions and prevent wind dispersal. Keep out of waterways. See section 13 for waste disposal information.

Note: see section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

- Handling** : Avoid contact with eyes, skin and clothing. Ensure eyewash facilities are located close to the working environment.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep away from heat and direct sunlight.
- Packaging materials**
- Recommended** : Use original container.

8. Exposure controls/personal protection

Exposure controls

- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: If ventilation is inadequate, use respirator that will protect against dust/mist.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: >8 hours (breakthrough time): butyl rubber , natural rubber (latex) , nitrile rubber
- Eye protection** : Recommended: Chemical splash goggles or face shield.
- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

9. Physical and chemical properties

General information

- Appearance**
- Physical state** : Liquid. [Clear.]
- Colour** : Colourless.
- Odour** : Ammoniacal. [Slight]

Important health, safety and environmental information

- pH** : 9,8 to 10 [Conc. (% w/w): 10%]
- Boiling point** : Decomposition temperature: 100°C

9. Physical and chemical properties

Melting/freezing point	: -11.5°C (11.3°F)
Vapour pressure	: 6.4 kPa (48 mm Hg) (at 40°C)
Density g/cm³	: 1.09 g/cm ³ (20°C / 68°F)
Miscible in water.	: Yes.

10. Stability and reactivity

Stability	: Stable under recommended storage and handling conditions (see section 7).
Conditions to avoid	: Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride.
Materials to avoid	: Highly reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.
Hazardous decomposition products	: These products are carbon dioxide carbon monoxide nitrogen oxides Ammonia.

11. Toxicological information

Potential acute health effects

Adverse health effects are considered unlikely, when the product is used according to directions.

Potential chronic health effects

Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: No specific data.
Eyes	: No specific data.

12. Ecological information

Environmental effects	: Readily biodegradable
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Other ecological information

Product/ingredient name	<u>Aquatic half-life</u>	<u>Photolysis</u>	<u>Biodegradability</u>
Air1®	-	-	Readily
Conclusion/Summary	: The product does not show any bioaccumulation phenomena.		
Mobility	: Soluble in the following materials: water		
Other adverse effects	: No known significant effects or critical hazards.		

13. Disposal considerations

Methods of disposal	: Empty containers or liners may retain some product residues. Do not empty into drains; dispose of this material and its container in a safe way. Dispose of in accordance with all applicable local and national regulations
Hazardous waste	: Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC..

14. Transport information

Not regulated.

Not classified as hazardous material according to UN Orange Book and international transport codes e.g. ADR (road), RID (rail), ADN (inland waterways) and IMDG (sea).

15. Regulatory information

EU regulations

Risk phrases : This product is not classified according to EU legislation.

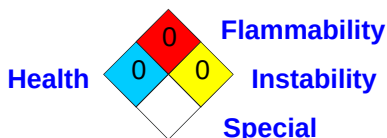
Product use : Industrial applications.

Classification and labelling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use.

Europe inventory : All components are listed or exempted.

16. Other information

National Fire Protection Association (U.S.A.) :



References : European Chemical Bureau, Annex 1 EU Directive 67/548/EEC
National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda
Registry of Toxic Effects of Chemical Substances
Atrion International Inc. 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada

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Version : 5

Prepared by : Yara Product Classification and Regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information provided in this Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein. Final determination of the suitability of any material is the sole responsibility of the user. All materials may represent unknown hazards and should be used with caution. Yara International ASA disclaims any liability for loss or damage resulting from the use of any data, information or recommendations set out in this Safety Data Sheet.

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