Date of issue: July 17th, 2018

Nissan Chemical CORPORATION

GPS Safety Summary

This Product Safety Summary is intended to provide a brief overview of the product and is not intended to provide specialized information, such as effect on the environment, human health or the process of risk assessment.
In-depth safety and health information should be obtained from the Safety Data Sheet (SDS) for the chemical substance.

Substance Name

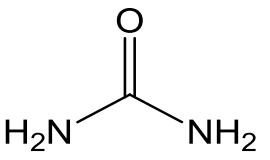
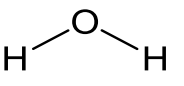
AdBlue®

General Statement

AdBlue® is a solution of urea in demineralised water. AdBlue® is used to completely convert nitric oxides in exhaust gases to nitrogen and water, which is used in Diesel trucks.

*AdBlue® is a registered trademark of the Verband der Automobilindustrie.

Chemical Identity

Item		
Published Chemical Name	a solution of urea in demineralised water (31.8 ~ 33.2%)	
Trade Name	AdBlue®	
Chemical Substance Name	Urea : Diaminomethanon	Water
CAS Registry No.	57-13-6	7732-18-5
Other Number	EC No. 200-315-5	
Molecular Formula	CH_4N_2O	H_2O
Structural formula		
Reference Source/Note	ECHA information on registered substances http://www.echa.europa.eu/web/guest/information-on-chemicals/registered-substances Nissan Chemical Corporation SDS (Safety Data Sheet)	

Uses and Applications

Primary use of products	AdBlue® is used to completely convert nitric oxides in exhaust gases to nitrogen and water, which is used in Diesel trucks.

Physical/Chemical Properties

Item	Value
Physical state (Form)	Liquid
Colour	Clear and colorless
Odor	Slight odor
Molecular weight (Urea)	60.06 g/mol
Density	approx. 1.09 (20 ℃)
Melting point (Urea)	132 ℃
Vapor pressure (Urea)	1.5996×10^{-3} Pa (25 ℃)
Water solubility (Urea)	624 g/L (20 ℃)
Partition coefficient octanol-water (Urea)	-1.73 logKow
Reference source/note	ECHA information on registered substances http://www.echa.europa.eu/web/guest/information-on-chemicals/registered-substances Nissan Chemical Corporation SDS (Safety Data Sheet)

Health effects

Effect Assessment	GHS Classification
Acute oral toxicity	Not classified *1
Acute inhalation toxicity (Gases)	Not applicable *2
Acute inhalation toxicity (Vapours)	Not applicable
Acute inhalation toxicity (Dusts and Mists)	Not classified
Acute dermal toxicity	Classification not possible *3
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation	Category 2B Causes eye irritation
Respiratory sensitization	Classification not possible
Skin sensitization	Classification not possible
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Classification not possible
Reproductive toxicity	Classification not possible
Specific target organ toxicity — single exposure	Classification not possible
Specific target organ toxicity — repeated exposure	Classification not possible
Aspiration hazard	Classification not possible
Reference source/note	ECHA information on registered substances http://www.echa.europa.eu/web/guest/information-on-chemicals/registered-substances Nissan Chemical Corporation SDS (Safety Data Sheet) *1 Not classified: when the hazards are believed to be less than even the lowest hazard classification defined in the GHS. *2 Not applicable: when chemicals do not fall within the scope of classification because the physical properties defined in the GHS do not apply. *3 Classification not possible: The data needed for judging classification are not available at all or sufficient data are not collected for classification.

Environmental Effects

Effect Assessment	Results(GHS Classification)
Acute aquatic hazard	Not classified
Chronic (long term) aquatic hazard	Not classified
Hazardous to the ozone layer	Classification not possible
Reference source/note	ECHA information on registered substances http://www.echa.europa.eu/web/guest/information-on-chemicals/registered-substances Nissan Chemical Corporation SDS (Safety Data Sheet)

Environmental fate/dynamics	Results
Mass transfer property	Low adsorption onto soil
Biodegradability test result	Rapidly biodegradable
Bioaccumulation	Low bioconcentration
PBT and vPvB properties	Not judged to be PBT*4 and vPvB*5
Reference source/note	ECHA information on registered substances http://www.echa.europa.eu/web/guest/information-on-chemicals/registered-substances Nissan Chemical Corporation SDS (Safety Data Sheet) *4 PBT: Persistent, bioaccumulative and toxic (Remaining in the environment and having high bioaccumulative and strong toxic properties) *5 vPvB：very Persistent and very Bioaccumulative (Readily remaining in the environment and having very high bioaccumulative property)

Exposure

Item	Exposure
Workplace exposure	Used in closed process where little potential exists for exposure, with no likelihood of worker exposure.
	During batch and other process where opportunity for exposure arises, workers may be exposed to substances by skin contact or inhalation, e.g. through maintenance, sampling, charging or discharging of material, and equipment breakages.
Consumer exposure	Urea included in AdBlue® is degraded to nitrogen, water and carbon dioxide, when it convert nitrogen and water to nitric oxides in exhaust gases. Therefore, urea released during handling is of no concern for the health of consumers since consumers will not come into contact with harmful levels of urea.
Environmental exposure	May be released primarily into the air and water environment from manufacturing processes of substances in industries.

Risk management measures

Item	Risk management measures
Workplace exposure countermeasure	While handling, wear appropriate personal protective equipment and apply local exhaust ventilation. And for substances with a threshold limit value, manage and control its environmental concentration so that it is lower than that.
Consumer exposure countermeasure	Use according to the product's instructions or safety labeling for use.
Environmental exposure countermeasure	Install appropriate wastewater treatment facilities.

Regulatory Information / Labelling Information

Laws and Regulations (JAPAN)	Detail
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Article 4 of the Supplementary Provisions unenforced, etc.)	The general chemical substance
Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof	Not classified
Fire Service Act	Not classified
Industrial Safety and Health Act	Not classified
Air Pollution Control Act	Not classified

Labelling Information	Detail
Pictogram	Not classified
Signal word	Warning
Hazard statements	・ Causes eye irritation (H320)
Precautionary statements	【Prevention precautionary statements】 Wash eyes thoroughly after handling (P264) 【Response precautionary statements】 ・ IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338) ・ If eye irritation persists : Get medical advice/attention. (P337+P313) 【Disposal precautionary statements】 Contract out disposing of contents/container to a specific waste disposal operator in accordance with regional regulation. (P501)

Contact Information within Company

Company name	Nissan Chemical Corporation
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Date of Issue/Review and Additional Information

First edition: 2017/4/6

Revised content:

Date of revision	Item	Revised content
2018/7/17		Company name and address

Special instructions:

Disclaimer

This Product Safety Summary is intended to provide a brief overview of the product and is not intended to provide specialized information, such as effect on the environment, human health or the process of risk assessment.

It is not intended to be a substitute for risk assessment report, such as CSR(Chemical Safety Report) or SDS(Safety Data Sheet).

It has been drawn up on the basis of laws and regulations, documents and data available at this time, but it does not constitute any guarantee.