

Safety Data Sheet dated 7/16/2021, version 2

### **1. IDENTIFICATION**

Product identifier Mixture identification: Trade name: DUNAPOL® AD 3206 V3 MCP Other means of identification: Trade code: 202115 Recommended use of the chemical and restrictions on use Product type: One component isocyanate Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party Company: DUNA-USA Inc. 4210 FM 1405 Baytown, Texas 77523 - U.S.A. Michigan Plant: 5900 West 6th street Ludington, Michigan 49431 www.dunagroup.com/usa Competent person responsible for the safety data sheet: info@dunausa.com Emergency phone number **DUNA-USA Inc** t:+1 281-383-3862

### 2. HAZARD(S) IDENTIFICATION

Classification of the chemical The product is not classified as dangerous according to OSHA Hazard Communication Standard (29 CFR 1910.1200).

Label elements Hazard pictograms: None Hazard statements: None Precautionary statements: None Special Provisions: None Hazards not otherwise classified identified during the classification process: None Ingredient(s) with unknown acute toxicity: None. NFPA rating:

HMIS rating:





### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

N.A.

Mixtures

Hazardous components within the meaning of 29 CFR 1910.1200 and related classification:

Qty	Name	Ident. Number		Classification
>= 60% - < 70%	Polypropylene glycol and diphenylmethane diisocyanate polymer	CAS:	39420-98-9	<ul> <li>A.4.1/1 Resp. Sens. 1 H334</li> <li>A.4.2/1 Skin Sens. 1 H317</li> </ul>
>= 25% - < 30%	Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI)	Index number: CAS: EC:	615-005-00-9 9016-87-9 618-498-9	<ul> <li>A.1/4/Inhal Acute Tox. 4 H332</li> <li>A.2/2 Skin Irrit. 2 H315</li> <li>A.3/2B Eye Irrit. 2B H320</li> <li>A.4.1/1 Resp. Sens. 1 H334</li> <li>A.4.2/1 Skin Sens. 1 H317</li> <li>A.6/2 Carc. 2 H351</li> <li>A.8/3 STOT SE 3 H335</li> <li>A.9/2 STOT RE 2 H373</li> </ul>

Included in CAS: 9016-87-9 there is:

- 25 - 50 % of Difenylmetan-4,4'-diisocyanate, CAS: 101-68-8, REACH n°:

01-2119457014-47-XXXX;

The polymer or polymers including their impurities are exempt from the registration regulations according to Article 2 (9) of REACH (EC) No. 1907/2006, therefore there are no annexes. The necessary information on the conditions of use and risk management measures (RMM) can be found in chapter 8 of this safety data sheet.

### 4. FIRST-AID MEASURES

Description of necessary measures In case of skin contact:

case of skin contact:

Wash with plenty of water and soap.

As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g. watchbrands, belts). Quickly and gently blot or brush away excess chemical. Immediately wash with lukewarm, gently flowing water and non-abrasive soap for 15-20 minuntes. Completely decontaminate clothing, shoes and leather goods before reuse or discard. If skin irritation or rush occurs get medical advice/attention.

In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.



Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 5 minutes, or until the chemical is removed, while holding the eyelid(s) open. If irritation persist, repeat flushing. Obtain medical attention immediately.

In case of ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

If swallowed, call a POISON CENTER or doctor/physician.

Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. Do not induce vimiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Quickly transport victim to an emergency care facility.

#### In case of inhalation:

Remove casualty to fresh air and keep warm and at rest.

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposed or concerned: Get medical advice/attention. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Immediately obtain medical attention and transport victim to an emergency care facility.

Most important symptoms/effects, acute and delayed

None

Indication of immediate medical attention and special treatment needed

Treatment:

Mantain the ventilation and the oxygen delivery to the patient at a proper level. It could cause pulmonary sensitisation or asthma symptoms. Bronchodilators, expectorants and cough mixtures can help. Treat the bronchospasm with beta-2-agonists (by inhalation) and corticosteroids administrated orally or parenterally. Symptoms related to respiratory diseases can be shown with delayed effects, including pulmonary edema. People subjected to a significant exposure to the substance should be kept under medical supervision for 24-48 hours in case respiratory diseases appear. Ask for medical advice if alreay sensitized to isocyanates and exposed to other substances which can cause airways irritation or sensistisation. In case of exposure, the treatment depends on the symptoms and the clinical status of the patient. An excessive exposure to the substance could make preexisting medical conditions worse.

#### **5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media	a:			
Water.				
Carbon dioxide (CO2)	l.			
Unsuitable extinguishing media:				
None in particular.				
Specific hazards arising from	n the chemical			
Do not inhale explosion	on and combustion gases.			
Burning produces hea	ivy smoke.			
Hazardous combustion prod	ucts:			
None				
Explosive properties:	Not explosive			
Oxidizing properties:	Not oxydant			
Special protective equipment	t and precautions for fire-fighters			
Use suitable breathing	g apparatus .			
Collect contaminated fire extinguishing water separately. This must not be discharged into				
drains.				
Move undamaged cor	ntainers from immediate hazard area if it can be done safely.			
0				

### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures Wear personal protection equipment.



Remove persons to safety. See protective measures under point 7 and 8. Methods and materials for containment and cleaning up Wash with plenty of water.

### 7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Do not use on extensive surface areas in premises where there are occupants.
Don't use empty container before they have been cleaned.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Contamined clothing should be changed before entering eating areas.
Do not eat or drink or smoke while working.

Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.
Incompatible materials:
None in particular.
Instructions as regards storage premises:
Adequately ventilated premises.

Storage temperature:

Store at ambient temperature.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters** 

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9

ACGIH - TWA(8h): 0.005 ppm

DNEL Exposure Limit Values

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9

Worker Industry: 50 mg/kg bw/d - Consumer: 25 mg/kg bw/d - Exposure: Human Dermal - Frequency: Short Term, systemic effects

Worker Industry: 0.1 ppm - Consumer: 0.05 ppm - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

Worker Industry: 28.7 mg/cm2 - Consumer: 17.2 mg/cm2 - Exposure: Human Dermal - Frequency: Short Term, local effects

Worker Industry: 0.1 ppm - Consumer: 0.05 ppm - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Industry: 0.05 ppm - Consumer: 0.025 ppm - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Worker Industry: 0.05 ppm - Consumer: 0.025 ppm - Exposure: Human Inhalation - Frequency: Long Term, local effects

Consumer: 20 mg/kg bw/d - Exposure: Human Oral - Frequency: Short Term, systemic effects

PNEC Exposure Limit Values

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9

Target: Fresh Water - Value: 1 mg/l

- Target: Marine water Value: 0.1 mg/l
- Target: Intermittent release Value: 10 mg/I
- Target: Soil Value: 1 mg/Kg
- Target: STP Value: 1 mg/l



Appropriate engineering controls: None Individual protection measures Eye protection: Not needed for normal use. Anyway, operate according good working practices. Protection for skin: No special precaution must be adopted for normal use. Protection for hands: Not needed for normal use. Respiratory protection: Not needed for normal use. Thermal Hazards: Woor protection goves when handling the newly formed polymer in order to avoid

Wear protective gloves when handling the newly formed polymer in order to avoid burns. General hygiene conditions

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Value	Method:	Notes:
Appearance and colour:	Pale yellow		
	liquid		
Odour:	Slightly musty		
Odour threshold:	Not available		
pH:	N.A.		
Melting point / freezing	<0 °C	ISO 3016	Data referring to PMDI, CAS:
point:			9016-87-9
Initial boiling point and	>300 °C	DIN 53171	Data referring to PMDI, CAS:
boiling range:			9016-87-9
Solid/gas flammability:	N.A.		
Upper/lower flammability	N.A.		
or explosive limits:			
Vapour density:	Not available		
Flash point:	>200 °C	EN ISO 2719	Data referring to PMDI, CAS:
			9016-87-9
Evaporation rate:	N.A.		
Vapour pressure:	<0.00001 hPa		Data referring to PMDI, CAS:
	@ 20 °C		9016-87-9
Relative density:	1.08 g/cc		
Solubility in water:	Insoluble		
Solubility in oil:	Not available		
Partition coefficient	N.A.		Reacts with water
(n-octanol/water):			
Auto-ignition temperature:	Not		
	pyrophoric		
Decomposition	Not available		
temperature:			
Viscosity:	3500-4000		
	cps (25°C)		
Miscibility:	N.A.		
Fat Solubility:	N.A.		
Conductivity:	N.A.		
Substance Groups	N.A.		
relevant properties			

### **10. STABILITY AND REACTIVITY**

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Reactivity Stable under normal conditions Chemical stability Stable under normal conditions Possibility of hazardous reactions It may generate flammable gases on contact with elementary metals (alkalis and alkaline earth, alloys in powder or vapours) and powerful reducing agents. It may generate toxic gases on contact with oxidising mineral acids, and powerful oxidising agents. It may catch fire on contact with oxidising mineral acids, and powerful oxidising agents. Conditions to avoid Stable under normal conditions. Incompatible materials Oxidizing agents. Water Hazardous decomposition products Carbon oxides. Nitrogen oxides. Cyanides. **11. TOXICOLOGICAL INFORMATION** Information on toxicological effects Toxicological information of the product: DUNAPOL® AD 3206 V3 MCP a) acute toxicity Not classified Based on available data, the classification criteria are not met b) skin corrosion/irritation Not classified Based on available data, the classification criteria are not met c) serious eye damage/irritation Not classified Based on available data, the classification criteria are not met d) respiratory or skin sensitisation Not classified Based on available data, the classification criteria are not met e) germ cell mutagenicity Not classified Based on available data, the classification criteria are not met f) carcinogenicity Not classified Based on available data, the classification criteria are not met g) Reproductive toxicity/toxicity to fertility Not classified Based on available data, the classification criteria are not met h) STOT-single exposure Not classified Based on available data, the classification criteria are not met i) STOT-repeated exposure Not classified Based on available data, the classification criteria are not met j) aspiration hazard Not classified Based on available data, the classification criteria are not met Toxicological information of the main substances found in the product: Polypropylene glycol and diphenylmethane diisocyanate polymer - CAS: 39420-98-9 a) acute toxicity: Test: LD50 - Route: Dermal - Species: Rabbit > 2000 mg/kg - Notes: N.A. Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg - Notes: N.A. 202115/2



Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9

a) acute toxicity:

Test: LC50 - Route: INHALDUST - Species: Rat = 0.49 mg/l - Duration: 4h - Source: OECD TG 403 - The atmosphere created for animal testing is not representative neither of working environments nor of how the substance is put on the market nor of how the substance is reasonably expected to be used. Accordingly, the test results can't be directly

Test: LC50 - Route: Aerosol inhalation - Species: Rat = 2.24 mg/l - Duration: 1h - Notes: Statements are derived from data of products with similar structure or composition.

Test: LC50 - Route: Aerosol inhalation - Species: Rat = 0.387 mg/l - Duration: 4h - Notes: Statements are derived from data of products with similar structure or composition.

Test: LD50 - Route: Dermal - Species: Rabbit > 9400 mg/kg - Source: OECD TG 402 Test: LD50 - Route: Oral - Species: Rat > 10000 mg/kg - Source: OECD TG 401

b) skin corrosion/irritation:

Test: Skin Irritant - Species: Rabbit Slightly irritating - Source: OECD TG 404 c) serious eye damage/irritation:

Test: Eye Irritant - Species: Rabbit Slightly irritating - Notes: Statements are derived from data of products with similar structure or composition.

d) respiratory or skin sensitisation:

Test: Skin Sensitization - Species: Guinea pig -Result: Negative - Source: OECD TG 406

Test: Skin Sensitization - Species: Mouse - Result: Positive - Source: OECD TG 429 - Notes: Statements are derived from data of products with similar structure or composition.

Test: Respiratory Sensitization - Species: Rat - Result: Positive - Source: Deduced from hazard classification of the substance

e) germ cell mutagenicity:

Test: Genotoxicity - Route: Inhalation - Species: Rat -Result: Negative - Source: OECD 474 - Notes: Statements are derived from data of products with similar structure or composition. - Based on available data, the classification criteria are not met

f) carcinogenicity:

Route: Aerosol inhalation - Species: Rat = 6 mg/m3 - Duration: 2y - Source: OECD TG 453 - Notes: 6 hours/day, 7 days/week for 2 years - Tumors developed when exposed to the highest dosage. Tested doses: 0 - 0.2 - 1 - 6 mg/m3

g) Reproductive toxicity/toxicity to fertility:

No data available for the product

h) STOT-single exposure:

Test: Target organ: airways - Notes: It can cause airways irritation

i) STOT-repeated exposure:

Test: Target organ: airways - Notes: It can damage organs in case of long-term and repeated exposure

j) aspiration hazard:

Based on available data, the classification criteria are not met

Substance(s) listed on the NTP report on Carcinogens:

None.

Substance(s) listed on the IARC Monographs:

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - Group 3.

Substance(s) listed as OSHA Carcinogen(s):

None.

Substance(s) listed as NIOSH Carcinogen(s): None.

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### **12. ECOLOGICAL INFORMATION**

Ecotoxicity Adopt good working practices, so that the product is not released into the environment. DUNAPOL® AD 3206 V3 MCP Not classified for environmental hazards Based on available data, the classification criteria are not met Polypropylene glycol and diphenylmethane diisocyanate polymer - CAS: 39420-98-9 a) Aquatic acute toxicity: Endpoint: EC50 - Species: Algae > 1640 mg/l - Duration h: 72 Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24 Endpoint: LC50 - Species: Fish > 1000 mg/l - Duration h: 96 Endpoint: LC50 - Species: Bacteria > 100 mg/l - Duration h: 3 b) Aquatic chronic toxicity: Endpoint: NOEC - Species: Algae 1640 mg/l - Duration h: 72 Endpoint: NOEC - Species: Daphnia > 10 mg/l Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9 a) Aquatic acute toxicity: Endpoint: NOEC - Species: Algae - Desmodesmus subcapitata = 1640 mg/l - Duration h: 72 - Notes: OECD TG 201 Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24 - Notes: OECD TG 202 Endpoint: LC50 - Species: Fish - Danio Rerio (zebrafish) > 1000 mg/l - Duration h: 96 -Notes: OECD TG 203 c) Toxicity to microorganism: Endpoint: EC50 - Species: Activated sludge > 100 mg/l - Duration h: 3 - Notes: OECD TG 209 d) Terrestrial toxicity: Endpoint: EC50 - Species: Lumbricus - Eisenia Fetida > 1000 mg/kg - Duration h: 336 -Notes: OECD TG 207 e) Plant toxicity: Endpoint: EC50 - Species: Oat - Avena sativa = 1000 mg/kg - Duration h: 336 - Notes: OECD TG 208 Endpoint: EC50 - Species: Lettuce - Lactuca sativa = 1000 mg/kg - Duration h: 336 -Notes: OECD TG 208 Persistence and degradability Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9 Biodegradability: not biodegradable - Test: Oxygen consumption - Duration: 28 d - %: 0 - Notes: OECD TG 302 C Bioaccumulative potential Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9 Bioaccumulation: Low bioaccumulation potential - Test: BCF - Bioconcentrantion factor 92 - Duration: 28 d - Notes: Low bioaccumulation potential Mobility in soil Diphenylmethane - 4.4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) - CAS: 9016-87-9 Notes: 07 Other adverse effects Isocianates react at the interface with water producing CO2 and an insoluble solid with high melting point (polyurea). The reaction is highly catalized by surfactants (e.g. liquid soap) and water-soluble solvents. According to the experience acquired so far, polyurea is inert and non-degradable..ec



### 13. DISPOSAL CONSIDERATIONS

Waste treatment and disposal methods

Recover if possible. In so doing, comply with the local and national regulations currently in force.

#### **14. TRANSPORT INFORMATION**

DOT

Not classified as dangerous in the meaning of transport regulations.

IATA

Not classified as dangerous in the meaning of transport regulations IMDG

Not classified as dangerous in the meaning of transport regulations

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code) N.A.

Special precautions

N.A.

### **15. REGULATORY INFORMATION**

USA - Federal regulations

TSCA - Toxic Substances Control Act

TSCA inventory: all the components are listed on the TSCA inventory.

TSCA listed substances:

Polypropylene glycol and diphenylmethane diisocyanate polymer is listed in TSCA Section 8b

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI) is listed in TSCA Section 8b, Section 8d HSDR.

SARA - Superfund Amendments and Reauthorization Act

Section 302 – Extremely Hazardous Substances: no substances listed.

Section 304 – Hazardous substances: no substances listed.

Section 313 – Toxic chemical list: Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI).

- CERCLA Comprehensive Environmental Response, Compensation, and Liability Act No substances listed.
- CAA Clean Air Act CAA listed substances: None.
- CWA Clean Water Act CWA listed substances: None.

USA - State specific regulations

California Proposition 65

Substance(s) listed under California Proposition 65:

None. Massachusetts Right to know

Substance(s) listed under Massachusetts Right to know:

Methylene diphenyl diisocyanate (CAS 101-68-8) Polymethylene polyphenyl isocyanate (CAS 9016-87-9)New Jersey Right to know

Substance(s) listed under New Jersey Right to know:

Diphenylmethane - 4,4'-diisocyanate, isomers (1) and homologues (2), blending of (1) and (2) (PMDI).

- US. Rhode Island RTK
  - Methylene diphenyl diisocyanate (CAS 101-68-8)

Polymethylene polyphenyl isocyanate (CAS 9016-87-9)



Pennsylvania Right to know

Substance(s) listed under Pennsylvania Right to know: Methylene diphenyl diisocyanate (CAS 101-68-8) Polymethylene polyphenyl isocyanate (CAS 9016-87-9)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*	
Canada	Domestic Substances List (DSL)	Yes	
Canada	Non-Domestic Substances List (NDSL)	No	
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes	

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### **16. OTHER INFORMATION**

Text of phrases referred to under heading 3:

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H320 Causes eye irritation.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

H373 May cause damage to organs through prolonged or repeated exposure.

Safety Data Sheet dated 7/16/2021, version 2 Disclaimer:

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality. The information relates only to the specific material and may not be valid for such material used in combination with any other material or in any process.

This Safety Data Sheet cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE:	Acute Toxicity Estimate
ATEmix:	Acute toxicity Estimate (Mixtures)
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GHS:	Globally Harmonized System of Classification and Labeling of
	Chemicals.
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization"

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(ICAO). IMDG: International Maritime Code for Dangerous Goods. International Nomenclature of Cosmetic Ingredients. INCI: Explosion coefficient. KSt: Lethal concentration, for 50 percent of test population. LC50: Lethal dose, for 50 percent of test population. LD50: National Fire Protection Association NFPA: National Institute for Occupational Safety and Health NIOSH: NTP: National Toxicology Program Occupational Safety and Health Administration OSHA: Predicted No Effect Concentration. PNEC: Regulation Concerning the International Transport of Dangerous Goods RID: by Rail. STEL: Short Term Exposure limit. Specific Target Organ Toxicity. STOT: Threshold Limiting Value. TLV: TWA: Time-weighted average