

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

1. Identification of the substance or mixture and of the supplier

Product name:
DYNAPOL® LS 436-12 LN

Chemical name:
Saturated polyester resin

Recommended use and restriction on use

Recommended use: Paints and lacquers Coloured printing inks Coating agent Binder
Restrictions on use: Not determined.

Manufacturer/Importer/Supplier/Distributor Information

Company Name : Evonik Specialty Chemicals (Shanghai) Co. Ltd.
68 Lianhe Road, Chemical Industry Park
201507 Shanghai
China

Telephone : +86 21 6119 1586

Fax : +86 21 6119 1264

E-mail : productsafety-china@evonik.com

Emergency telephone number:

24-Hour Health
Emergency : +86 532 8388 9090 (China 24h)

Issue Date: 2020.09.11

Version #: 1.0

Revision Date: 2020.09.11

First compiled date: 2020.09.11

2. Hazard(s) identification

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Emergency Overview: clear, yellowish liquid. Odor: Aromatic. Notes to physician: Continue with first aid measures. Depending on the pathology and clinical findings, patient monitoring and symptomatic treatment are necessary. Inhalation may provoke the following symptoms: Headache. Drowsiness Daze Unconsciousness. Dry skin.

GHS classification**Physical Hazards**

Flammable liquids Category 4

Environmental Hazards

Acute hazards to the aquatic environment Category 3

Chronic hazards to the aquatic environment Category 3

Label Elements**Pictograms:** No symbol**Signal Word:** Warning**Hazard Statement:** Combustible liquid.
Harmful to aquatic life with long lasting effects.**Precautionary Statements****Prevention:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Wear protective gloves/eye protection/face protection.**Response:** In case of fire: Use water spray, foam, CO2, dry powder to extinguish.**Storage:** Not applicable**Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.**Physical and Chemical Hazards:** None.**Health Hazards:** None.**Environmental Hazards:** None.**Other hazards which do not result in GHS classification:** Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.**3. Composition/information on ingredients**

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Chemical name:
 Saturated polyester resin

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters	95481-62-2	10 - <25%
Solvent naphtha (petroleum), heavy arom.	64742-94-5	10 - <20%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Classification

Chemical name	Classification	Notes
Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters	Acute hazards to the aquatic environment: Category 3;	No data available.
Solvent naphtha (petroleum), heavy arom.	Flammable liquids: Category 4; Specific Target Organ Toxicity - Single Exposure: Category 3; Aspiration Hazard: Category 1; Acute hazards to the aquatic environment: Category 2; Chronic hazards to the aquatic environment: Category 2;	No data available.

4. First-aid measures
Description of necessary first-aid measures

General information:	Take off all contaminated clothing immediately. Pay attention to self-protection. Move out of dangerous area. Keep warm, position comfortably, and cover well. Do not leave affected persons unattended.
Inhalation:	Remove to fresh air. If feeling unwell seek medical advice. Place patients at risk of losing consciousness in stabilized lateral position; artificial respiration as required Monitor breathing, seek medical advice immediately.
Skin Contact:	Wash skin thoroughly with soap and water or use recognized skin cleanser. Consult a doctor in the event of permanent skin irritation.
Eye contact:	Rinse thoroughly with plenty of water, also under the eyelids. See an eye specialist immediately.
Ingestion:	Do not induce vomiting and seek medical advice immediately. Keep respiratory tract clear.
Personal Protection for First-aid Responders:	Have ready/wear respiratory protection equipment.

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Most important symptoms/effects, acute and delayed

Symptoms: Inhalation may provoke the following symptoms: Headache.
Drowsiness Daze Unconsciousness. Dry skin.

Hazards: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: Continue with first aid measures. Depending on the pathology and clinical findings, patient monitoring and symptomatic treatment are necessary.

5. Fire-fighting measures**Suitable (and unsuitable) extinguishing media**

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: High volume water jet.

Specific hazards arising from the chemical: No data available.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Also keep emptied containers away from sources of heat and ignition. Containers exposed to heat (fire) may build up pressure. Cool by splashing with water. Water for fire fighting must not be introduced in the sewer system, subsoil, or surface waters. Assure that there are sufficient fire water retaining facilities Contaminated fire fighting water must be disposed of in conformity with the regulations of the local authorities.

Special protective equipment for fire-fighters: Have ready/wear respiratory protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Do not breathe vapours or spray mist. Ensure adequate ventilation. Keep away from sources of ignition - No smoking.

Methods and material for containment and cleaning up: Take up mechanically or with an absorbent material. Fill into marked, sealable containers. To be disposed of in compliance with existing regulations. Suitable material for picking up. Sand Kieselguhr Universal binder

Environmental Precautions: Do not flush into surface water or sanitary sewer system.

Prevention of secondary hazards: Do not allow to enter soil, waterways or waste water canal. Shut off ignition sources; no flares, smoking or flames in hazard area.

4/15

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation): Provide readily accessible eye wash stations and safety showers. Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit. Ensure suitable suction/aeration at the work place and with operational machinery.

Safe handling advice: Provide good ventilation or extraction. Avoid contact with eyes, skin, and clothing. All metal parts of the mixing and processing equipment must be earthed. Do not empty into drains. Do not breathe in vapours, aerosols, sprays. Wash hands before breaks and at the end of workday. Remove contaminated or saturated clothing.

Contact avoidance measures: No data available.

Hygiene measures: Do not eat, drink or smoke while working. Wash hands, and/or face before breaks and when workday is finished. Avoid clothing from being contaminated with the product. Wash contaminated clothing after use. Apply adequate skin protection agents before handling the product. Assure skin cleaning and skin care after work. Preventive skin protection is recommended.

Storage

Safe storage conditions: Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking. Keep containers tightly closed in a cool, well-ventilated place.

Safe packaging materials: No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Biological Limit Values

Contains no substance with biological exposure limit values (China).

Appropriate Engineering Controls: Provide readily accessible eye wash stations and safety showers. Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit. Ensure suitable suction/aeration at the work place and with operational machinery.

Monitoring methods: No data available.

Individual protection measures, such as personal protective equipment

Eye/face protection: Safety glasses with side-shields

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Skin Protection

Hand Protection: Material: nitrile rubber (Camatril Velours)
Break-through time: > 480 min
Glove thickness: 0.4 mm
Guideline: DIN EN 374
Additional Information: Examples of suitable gloves are those made by the company Kächele-Cama Latex GmbH, Am Kreuzacker 9, D-36124 Eichenzell, e-mail vertrieb@kcl.de, with subsequent specification (test according to EN374); specific workplace conditions must be separately taken into account.

Skin and Body Protection: Work uniform or laboratory coat.

Respiratory Protection: In case of dusts/vapours/aerosols being formed or if the limit values like TLV are exceeded: Respirator with brown A-type filter or wear a self contained respiratory apparatus Note time limit for wearing respiratory protective equipment.

Hygiene measures: Do not eat, drink or smoke while working. Wash hands, and/or face before breaks and when workday is finished. Avoid clothing from being contaminated with the product. Wash contaminated clothing after use. Apply adequate skin protection agents before handling the product. Assure skin cleaning and skin care after work. Preventive skin protection is recommended.

9. Physical and chemical properties**Appearance**

Physical state:	liquid
Form:	liquid
Color:	clear, yellowish
Odor:	Aromatic
Odor Threshold:	Not determined., Not required by safety or application considerations.
pH:	Not applicable
Freezing point:	No data available. Not required by safety or application considerations.
Boiling Point:	Approximate 185 °C (1,013 hPa) Solvent
Flash Point:	72 °C (Pensky-Martens Closed Cup)
Evaporation Rate:	No data available. Not required by safety or application considerations.
Flammability (solid, gas):	Not applicable liquid
Explosive limit - upper:	see Explosiveness
Explosive limit - lower:	see Explosiveness
Vapor pressure:	Approximate 2 hPa (20 °C)
Relative vapor density:	No data available.
Density:	Approximate 1.1 g/cm ³ (20 °C) (DIN 51757)

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Relative density:	No data available. Not required by safety or application considerations.
Solubility in Water:	Insoluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available. Not required by safety or application considerations.
Self Ignition Temperature:	The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.
Decomposition Temperature:	No data available. Not required by safety or application considerations.
Kinematic viscosity:	> 20.5 mm ² /s (40 °C)
Dynamic viscosity:	5 Pa.s (23 °C, DIN EN ISO 3219)
Other information	
Explosive properties:	Vapours can form explosive mixtures with air. Not explosive
Oxidizing properties:	The substance or mixture is not classified as oxidizing.
Minimum ignition temperature:	No data available. Not required by safety or application considerations.
Formation of Flammable Gases:	Substance or mixture, which in contact with water, does not emit flammable gas
Metal Corrosion:	Not corrosive to metals
Peroxides:	The substance or mixture is not classified as organic peroxide.

10. Stability and reactivity

Reactivity:	Under normal conditions: stable.
Chemical Stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	No hazardous reactions known.
Conditions to avoid:	Keep away from heat and sources of ignition.
Incompatible Materials:	Oxidizing agents. alkalis. aluminium
Hazardous Decomposition Products:	carbon monoxide, carbon dioxide toxic gases/vapours

11. Toxicological information

Information on likely routes of exposure

Inhalation:	Information on effects are given below.
Skin Contact:	Information on effects are given below.
Eye contact:	Information on effects are given below.

Product name: DYNAPOL® LS 436-12 LNSaturated polyester resin

Ingestion: Information on effects are given below.**Symptoms related to the physical, chemical and toxicological characteristics****Inhalation:** No data available.**Skin Contact:** No data available.**Eye contact:** No data available.**Ingestion:** No data available.**Information on toxicological effects****Acute toxicity (list all possible routes of exposure)****Oral****Product:** Not classified for acute toxicity based on available data.**Dermal****Product:** ATEmix 10,000 mg/kg**Inhalation****Product:** Not classified for acute toxicity based on available data.No data available.**Repeated dose toxicity****Product:** No data available.**Skin Corrosion/Irritation****Product:** No data available.**Components:**Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters
OECD 404 Not irritating Not irritating**Serious Eye Damage/Eye Irritation****Product:** No data available.**Respiratory or Skin Sensitization****Product:** No data available.

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Components:

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters , OECD 429Not a skin sensitizer.
Not a respiratory sensitizer

Carcinogenicity

Product: No data available.

Components:

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters Not classified

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Components:

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters Not classified

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Components:

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters Not classified

Solvent naphtha (petroleum), heavy arom. Inhalation - vapor: Central nervous system. - Category 3 with narcotic effects.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Components:

Product name: DYNAPOL® LS 436-12 LNSaturated polyester resin

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters

Not classified

Aspiration Hazard**Product:** No data available.**Components:**

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters

Not classified

Solvent naphtha (petroleum), heavy arom.

May be fatal if swallowed and enters airways.

Other effects:

No tests were performed with this mixture. The properties of this product which are hazardous to health have been calculated as per regulation (EC) No. 1272/2008. See section 2 "Hazards Identification".

12. Ecological information**Ecotoxicity:****Acute hazards to the aquatic environment:****Fish****Product:** No data available.**Components:**

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters

LC 50 (Pimephales promelas, 96 h): > 18 - < 24 mg/l

Solvent naphtha (petroleum), heavy arom.

LC 50 (Fish, 96 h): 2 - 5 mg/l

Aquatic Invertebrates**Product:** No data available.**Components:**

Product name: DYNAPOL® LS 436-12 LNSaturated polyester resin

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters EC 50 (Daphnia magna, 48 h): 112 - 150 mg/l

Solvent naphtha (petroleum), heavy arom. EC 50 (Daphnia magna, 48 h): 3 - 10 mg/l

Toxicity to microorganisms

Product: No data available.

Components

Solvent naphtha (petroleum), heavy arom. EC 50 (Bacteria, 48 h): 1.718 mg/l

Chronic hazards to the aquatic environment:**Fish**

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:

Reaction mass of dimethyl adipate and dimethyl glutarate and dimethyl succinate, Mixture of DBE Esters ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h): > 85 mg/l
NOEC (Algae (Pseudokirchneriella subcapitata)): 36 mg/l

Solvent naphtha (petroleum), heavy arom. ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h): > 1 - 3 mg/l

Persistence and Degradability**Biodegradation**

Product: No data available.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential**Bioconcentration Factor (BCF)**

Product: No data available.

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: No data available. Not required by safety or application considerations.

Mobility in soil: No data available.

Other adverse effects: No tests were performed with this mixture. The properties of this product which are characteristics posing a threat to the environment have been calculated as per regulation (EC) No. 1272/2008. See section 2 "Hazards Identification".

13. Disposal considerations

Disposal methods: It should not be released into the environment. Do not dump into any sewers, on the ground, or into any body of water. Please follow local and national laws and regulations, and regulations may vary from region to region. The identification and subsequent compliance of chemical waste is the main responsibility of the waste generator, waste product listed in National Hazardous Wastes Catalogue must be entrusted to a qualified waste disposal agency for disposal. Chemical waste generators must determine whether the waste chemical is classified as general waste or hazardous waste. As a supplier of chemical products, it is impossible to know the specific use, manufacture process and process sources of the waste from downstream user, so it is impossible to provide information on the waste code after the product is discarded.

Contaminated Packaging: Uncontaminated packaging can be recycled and reused. Contaminated packaging should be disposed of as for product, to be entrusted to a qualified waste disposal agency for recycling or disposal. Please follow local and national laws and regulations, and regulations may vary from region to region. Can not be treated as domestic waste.

14. Transport information

Domestic regulation

Road transport (GB 6944/12268)

Not regulated as a dangerous good

Remarks : FOR USA ONLY: In packagings exceeding 450 L, this product must be classified, placarded, marked and shipped as Combustible Liquid to the USA.

International Regulations

UNRTDG

Not regulated as a dangerous good

Product name: DYNAPOL® LS 436-12 LNSaturated polyester resin

IATA-DGR

Not regulated as a dangerous good

Remarks : FOR USA ONLY: In packagings > 450 L this Product must be classified, placarded, marked and shipped as Combustible Liquid in the USA.

IMDG-Code

Not regulated as a dangerous good

Remarks : FOR USA ONLY: In packagings > 450 L this Product must be classified, placarded, marked and shipped as Combustible Liquid in the USA.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

Remarks : FOR USA ONLY: In packagings exceeding 450 L, this product must be classified, placarded, marked and shipped as Combustible Liquid to the USA.

15. Regulatory information**China. Catalog of Hazardous Chemicals (2015 Edition)**

Regulated

China. Precursor Chemicals (Decree No. 445 of the PRC on Regulation for Administration of Precursor Chemicals, Appendix: Categories 1-3)

Not Regulated

China. Explosive Precursor Hazardous Chemicals (2017)

Not Regulated

China. Catalog of First Batch Hazardous Chemicals Subject to Key Supervision (2011)**Not Regulated****China. Catalog of Second Batch Hazardous Chemicals Subject to Key Supervision (2013)****Not Regulated**

The following laws, regulations, rules and standards include provisions governing the management of chemicals:
Regulations on Safety Administration of Hazardous Chemicals (Decree No.591 of the State Council)
Occupational Exposure Limits for Hazardous Agents in the Workplace, Part 1, Chemical Hazardous Agents (GBZ 2.1)

List of Dangerous Goods (GB 12268)

Classification and Code of Dangerous Goods (GB 6944)

Product name: DYNAPOL® LS 436-12 LN

Saturated polyester resin

Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/ T 16483)
Guidance on the Compilation of Safety Data Sheets for Chemical Products (GB/ T 17519)
General Rules for Preparation of Precautionary Label for Industrial Chemicals (GB 15258)
National Hazardous Wastes Catalogue

Inventory Status:

China Inv. Existing Chemical Substances: Included on Inventory.

Should comply with local regulations in respect of this product.**16. Other Information**

First compiled date: 2020.09.11
Issue Date: 2020.09.11
Version #: 1.0
Revision Date: 2020.09.11

Abbreviations and acronyms

ASTM: American Society for Testing and Materials
ATP: Adaptation to Technical Progress
BCF: Bioconcentration factor
BOD: Biochemical oxygen demand
c.c.: closed cup
CAS: Chemical Abstract Services
CESIO: European Committee of Organic Surfactants and their Intermediates
CMR: carcinogenic-mutagenic-toxic for reproduction
COD: Chemical oxygen demand
DIN: German Institute for Standardization
EC50: half maximal effective concentration
GHS: Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP: Good Laboratory Practice
GMO: Genetic Modified Organism
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods
ISO: International Organization For Standardization
LC50: 50 % Lethal Concentration
LD50: 50 % Lethal Dose
L(E)C50: LC50 or EC50
LOAEL: Lowest observed adverse effect level
LOEL: Lowest observed effect level
MAC: Maximum allowable concentration
NOAEL: No observed adverse effect level
NOEC: no observed effect concentration

14/15

Product name: DYNAPOL® LS 436-12 LNSaturated polyester resin

NOEL: no observed effect level
o. c.: open cup
OECD: Organisation for Economic Cooperation and Development
OEL: Occupational Exposure Limit
PC-TWA: Permissible concentration - time weighted average
PC-STEL: Permissible concentration - short term exposure limit
PEC: Predicted effect concentration
PNEC: Predicted no effect concentration
REACH: REACH registration
RID: Convention concerning International Carriage by Rail
STOT: Specific Target Organ Toxicity
TA: Technical Instructions
TPR: Third Party Representative (Art. 4)
VOC: volatile organic compounds
WHO: World Health Organization

Training information: Comply with national laws regulating employee instruction.

Further Information: No data available.

References: relevant manuals and publications
own examinations
own toxicological and ecotoxicological studies
toxicological and ecotoxicological studies of other manufacturers
SIAR
OECD-SIDS
RTK public files
Chinese regulations and inventories

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer: This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.