

Material Safe Data Sheet

Activonol-5N

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Activonol-5N
Manufacturer	: ActivON. Co., Ltd. 456-843, 59, Je2gongdan 5-gil, Miyang-myeon, Anseong-si, Gyeonggi-do, Korea Tel 82-31-206-7461, Fax 82-31-206-7462
Supplier/Distributor	: ActivON. Co., Ltd. Digital empire II 103-411, 88, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea Tel 82-31-893-8882 Fax 82-70-8786-5200 activon@activon.kr

2. HAZARDS IDENTIFICATION

Label elements

According to Regulation (EC) No 1272/2008 [CLP]



Signal Word : Danger

Hazard Statement:

H318 Causes serious eye damage.

Precautionary Statements (Prevention):

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements (Response):

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove



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P310 contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

According to Directive 67/548/EEC or 1999/45/EC

as in Annex VI of Directive 67/548/EEC

Hazard symbol(s)

Xi Irritant



R-phrases)

R41 Risk of serious damage to eyes.

S-phrases)

S39 Wear eye/face protection.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Hazard determining component(s) for labelling: pentane-1,2-diol

Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Serious eye damage/eye irritation: Cat. 1

According to Directive 67/548/EEC or 1999/45/EC

Possible Hazards:

Risk of serious damage to eyes.

Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

Other Hazards (GHS):

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. COMPOSITION & INFORMATION ON INGREDIENTS

Substances

Chemical nature



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diols

Hazardous ingredients (GHS)

according to Regulation (EC) No. 1272/2008

pentane-1,2-diol

Content (W/W): > 99.00 %

CAS Number: 5343-92-0

EC-Number: 226-285-3

Hazardous ingredients

according to Directive 1999/45/EC

pentane-1,2-diol

Content (W/W): > 99.00 %

CAS Number: 5343-92-0

EC-Number: 226-285-3

Hazard symbol(s): Xi

R-phrases: 41

The wording of the hazard symbols, R-phrases and H-statements is specified in chapter 16 if dangerous ingredients are mentioned.

4. FIRST AID MEASURES

Description of first aid measures

Remove contaminated clothing.

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

On skin contact:

Wash thoroughly with soap and water.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.



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Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. FIRE-FIGHTING MEASURES**Extinguishing media**

Suitable extinguishing media:

water spray, alcohol-resistant foam, dry powder, carbon dioxide

Special hazards arising from the substance or mixture

Vapours may form explosive mixture with air. Cool endangered containers with water-spray. Risk of bursting. Burning produces harmful and toxic fumes.

Advice for fire-fighters

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Handle in accordance with good industrial hygiene and safety practice.

Environmental precautions

Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

For large amounts: Pump off product.

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For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.

Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

Take precautionary measures against static discharges. Sources of ignition should be kept well clear.

Conditions for safe storage, including any incompatibilities

Storage stability:

Storage duration: 24 Months

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Control parameters

PNEC

freshwater: 0.5 mg/l

marine water: 0.05 mg/l

intermittent release: 5 mg/l

sediment (freshwater): 1.85 mg/kg

soil: 0.0764 mg/kg

STP: 5500 mg/l

sediment (marine water): 0.185 mg/kg

DNEL



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worker:

Long- and short-term exposure - systemic effects, dermal: 17.5 mg/kg

worker:

Long-term exposure- systemic effects, Inhalation: 17.6 mg/m³

worker:

Long- and short-term exposure - local effects, dermal: 2.02 mg/cm²

worker:

Short-term exposure - systemic effects, Inhalation: 35.2 mg/m³

consumer:

Long- and short-term exposure - systemic effects, dermal: 12.5 mg/kg

consumer:

Long-term exposure- systemic effects, Inhalation: 4.4 mg/m³ 31.26 mg/kg

consumer:

Long- and short-term exposure - systemic effects, oral: 1.25 mg/kg

consumer:

Short-term exposure - systemic effects, Inhalation: 8.8 mg/m³ 31.25 mg/kg

consumer:

Long- and short-term exposure - systemic effects, dermal: 1.1 mg/cm²

Exposure controls

Personal protective equipment

Respiratory protection:

Breathing protection if gases/vapours are formed. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Consider the risk management measures as outlined in the exposure scenario.

Hand protection:

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

polyvinylchloride (PVC) - 0.7 mm coating thickness

chloroprene rubber (CR) - 0.5 mm coating thickness

fluoroelastomer (FKM) - 0.7 mm coating thickness



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Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Tightly fitting safety goggles (splash goggles) (e.g. EN 166)

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin, eyes and clothing. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Form: liquid

Appearance: Clear colorless liquid

Odor: Characteristics

Melting point: < -40 °C

Boiling point: 208 - 210 °C

Flash point: 110 °C (DIN 51758)

Flammability: not readily ignited (other)

Lower explosion limit: 1.7 %(V)
(105.5 °C)

Upper explosion limit: 9.3 %(V)
(139 °C)

Ignition temperature: 380 °C (DIN 51794)

Vapour pressure: < 1 mbar
(20 °C)

Specific gravity: 0.966 – 0.976
(20 °C)

Solubility in water: miscible
(20 °C)



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Partitioning coefficient n-octanol/water (log Kow): 0.06 (OECD Guideline 107)
(25 °C)

Self ignition: not self-igniting

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

Viscosity, dynamic: 77.1 mPa.s (OECD 114)
(20 °C)

22.9 mPa.s

(40 °C)

Viscosity, kinematic: 79.4 mm²/s
(20 °C)

24 mm²/s

(40 °C)

Other information

Miscibility with water: miscible in all proportions

Surface tension: hygroscopic, Based on chemical structure, surface activity is not to be expected.

Grain size distribution: The substance / product is marketed or used in a non solid or granular form.

Molar mass: 104.15 g/mol

10. STABILITY AND REACTIVITY

Reactivity

Formation of Remarks: Forms no flammable gases in the presence of water.

flammable gases:

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Avoid extreme heat. Avoid sources of ignition. Avoid electro-static discharge.

Incompatible materials

Substances to avoid:

strong oxidizing agents



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Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. Virtually nontoxic after a single ingestion.

Experimental/calculated data:

LD50 rat (oral): > 5,000 mg/kg (OECD Guideline 401)

LC50 rat (by inhalation): > 7,015 mg/l 4 h

An aerosol was tested.

LD50 rat (dermal): > 2,000 mg/kg (OECD Guideline 402)

Irritation

Assessment of irritating effects:

Not irritating to the skin. May cause severe damage to the eyes.

Experimental/calculated data:

Skin corrosion/irritation rabbit: non-irritant (OECD Guideline 404)

Serious eye damage/irritation rabbit: irreversible damage (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

guinea pig: Non-sensitizing.

Germ cell mutagenicity



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Assessment of mutagenicity:

No mutagenic effect was found in various tests with bacteria and mammalian cell culture.

Carcinogenicity

Assessment of carcinogenicity:

No data available concerning carcinogenic effects. Study scientifically not justified.

Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from products of a similar structure or composition.

Specific target organ toxicity (single exposure)

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Aspiration hazard

No aspiration hazard expected.

12. ECOLOGICAL INFORMATION

Toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Aquatic invertebrates:



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EC50 (48 h) > 500 mg/l, *Daphnia magna* (Directive 79/831/EEC, static)

The details of the toxic effect relate to the nominal concentration.

Aquatic plants:

EC50 (72 h) 9,335 mg/l (growth rate), *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:

EC20 (0.5 h) > 1,000 mg/l, activated sludge, industrial (DIN EN ISO 8192, aquatic)

EC50 (17 h) > 10,000 mg/l, *Pseudomonas putida* (DIN 38412 Part 8, aquatic)

Chronic toxicity to fish:

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:

Study scientifically not justified.

Assessment of terrestrial toxicity:

Study scientifically not justified.

Persistence and degradability

Assessment biodegradation and elimination (H₂O):

Readily biodegradable (according to OECD criteria).

Elimination information:

73 % DOC reduction (28 d) (OECD 301E; 84/449/EEC, C.3)

Assessment of stability in water:

According to structural properties, hydrolysis is not expected/probable.

Bioaccumulative potential

Assessment bioaccumulation potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.



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Mobility in soil (and other compartments if available)

Assessment transport between environmental compartments:

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria. Self classification

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling vPvB (very persistent/very bioaccumulative) criteria. Self classification

Information on: pentane-1,2-diol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria. Self classification

Information on: pentane-1,2-diol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling vPvB (very persistent/very bioaccumulative) criteria. Self classification

Additional information

Sum parameter

Chemical oxygen demand (COD): 2,070 mg/g

Biochemical oxygen demand (BOD): 1,070 mg/g

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Incinerate in suitable incineration plant, observing local authority regulations.

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Contaminated packaging:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. TRANSPORT INFORMATION

Land transport

ADR Not classified as a dangerous good under transport regulations

RID Not classified as a dangerous good under transport regulations

Inland waterway transport

AND Not classified as a dangerous good under transport regulations

Sea transport

IMDG Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO Not classified as a dangerous good under transport regulations

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or Mixture

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. OTHER INFORMATION

Full text of hazard symbols, hazard statements and R-phrases if mentioned as hazardous components in chapter 3:

Xi Irritant.
 41 Risk of serious damage to eyes.
 H318 Causes serious eye damage.

Revision date : 2016-07-01

Version No : 1.1



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The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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