

**mikrozyd® AF liquid**    **No Change Service!**

Version                      Revision Date:                      Date of last issue: 07.02.2017  
05.04                          09.10.2017                          Date of first issue: 03.12.2001

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name                      : mikrozyd® AF liquid

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Use of the Sub-                      : Disinfectants and general biocidal products  
stance/Mixture

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/ Supplier              : Schülke & Mayr GmbH  
Robert-Koch-Str. 2  
  
22851 Norderstedt  
Germany  
Telephone: +49 (0)40/ 52100-0  
Telefax: +49 (0)40/ 52100318  
mail@schuelke.com  
www.schuelke.com  
  
E-mail address of person              : Application Department  
responsible for the                      +49 (0)40/ 521 00 8800  
SDS/Contact person                      ADHI@schuelke.com  
(Schülke & Mayr UK Ltd.: +44-1142543500)

**1.4 Emergency telephone number**

Emergency telephone num-              : UK Poisons Emergency number: 0870 600 6266  
ber

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Flammable liquids, Category 3                      H226: Flammable liquid and vapour.  
Eye irritation, Category 2                          H319: Causes serious eye irritation.  
Specific target organ toxicity - single ex-                      H336: May cause drowsiness or dizziness.  
posure, Category 3

**2.2 Label elements****Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms                      :



Signal word                      : Warning

Hazard statements                      : H226 Flammable liquid and vapour.

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**schülke** 

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- H319 Causes serious eye irritation.  
H336 May cause drowsiness or dizziness.
- Precautionary statements : P102 Keep out of reach of children.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P261 Avoid breathing vapours/ spray.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves (e.g. Nitrile rubber) /eye protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/attention.
- Special labelling of certain mixtures : Labelling according to Regulation (EC) No. 648/2004: (perfumes)
- Further information : Use biocides safely. Always read the label and product information before use.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Vapours may form explosive mixtures with air.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Solution of the following substances with harmless additives.

#### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Propan-1-ol	71-23-8 200-746-9 603-003-00-0 01-2119486761-29-XXXX	Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336	35
Ethanol	64-17-5 200-578-6 603-002-00-5 01-2119457610-43-XXXX	Flam. Liq. 2; H225 Eye Irrit. 2; H319	25

For explanation of abbreviations see section 16.

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**SECTION 4: First aid measures**
**4.1 Description of first aid measures**

- General advice : Take off all contaminated clothing immediately.
- If inhaled : Move to fresh air.  
If symptoms persist, call a physician.
- In case of skin contact : Wash off with plenty of water.  
If symptoms persist, call a physician.
- In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
If eye irritation persists, consult a specialist.
- If swallowed : Do NOT induce vomiting.  
Clean mouth with water and drink afterwards plenty of water.  
Obtain medical attention.

**4.2 Most important symptoms and effects, both acute and delayed**

- Symptoms : Treat symptomatically.

**4.3 Indication of any immediate medical attention and special treatment needed**

- Treatment : For specialist advice physicians should contact the Poisons Information Service.

**SECTION 5: Firefighting measures**
**5.1 Extinguishing media**

- Suitable extinguishing media : Dry powder  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Water spray jet
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

**5.2 Special hazards arising from the substance or mixture**

- Specific hazards during fire-fighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Vapours may form explosive mixtures with air.

**5.3 Advice for firefighters**

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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Personal precautions : Ensure adequate ventilation.  
Remove all sources of ignition.

**6.2 Environmental precautions**

Environmental precautions : Avoid subsoil penetration.

**6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).  
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

**6.4 Reference to other sections**

see Section 8 + 13

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.  
Use only in well-ventilated areas.

Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking. The hot product gives off combustible vapours.

Hygiene measures : Keep away from food and drink.

**7.2 Conditions for safe storage, including any incompatibilities**

Requirements for storage areas and containers : Store at room temperature in the original container. Do not store at temperatures above 30°C.  
Further information on storage conditions : Keep container tightly closed. Keep away from direct sunlight.  
Recommended storage temperature: 15 - 25°C  
Advice on common storage : Do not store together with oxidising agents.

**7.3 Specific end use(s)**

Specific use(s) : none

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational Exposure Limits**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethanol	64-17-5	Permissible exposure limit	500 ppm 960 mg/m <sup>3</sup>	TRGS 900

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		Ceiling Limit Value	1.000 ppm 1.920 mg/m <sup>3</sup>	TRGS 900
		Permissible exposure limit	1.000 ppm 1.900 mg/m <sup>3</sup>	OSHA
Propan-1-ol	71-23-8	Permissible exposure limit	200 ppm 500 mg/m <sup>3</sup>	OSHA

### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ethanol	Workers	Inhalation	Acute effects, Local effects	1900 mg/m <sup>3</sup>
	Workers	Skin contact	Chronic effects	343 mg/kg
	Workers	Inhalation	Chronic effects	950 mg/m <sup>3</sup>
Propan-1-ol	Workers	Skin contact	Long-term exposure, Systemic effects	136 mg/kg
	Workers	Inhalation	Long-term exposure, Systemic effects	268 mg/m <sup>3</sup>
	Workers	Inhalation	Short-term exposure, Systemic effects	1723 mg/m <sup>3</sup>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Propan-1-ol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Fresh water sediment	22,8 mg/kg
	Marine sediment	2,28 mg/kg
	Effects on waste water treatment plants	96 mg/l
	Soil	2,2 mg/kg
	Intermittent use/release	10 mg/l
Ethanol	Fresh water	0,96 mg/l
	Marine water	0,79 mg/l
	Fresh water sediment	3,6 mg/kg
	Soil	0,63 mg/kg

## 8.2 Exposure controls

### Personal protective equipment

Eye protection : Safety glasses with side-shields conforming to EN166

Hand protection  
Directive

: The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Remarks

: Splash protection: disposable nitrile rubber gloves e.g. Dermatril (layer thickness: 0.11 mm) made by KCL or gloves from other manufacturers offering the same protection. Prolonged contact: Nitrile rubber gloves e.g. Camatril (>120 Min., layer thickness: 0.40 mm) or butyl rubber gloves

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e.g. Butoject (>480 Min., layer thickness: 0.70 mm) made by KCL or gloves from other manufacturers offering the same protection.

- Respiratory protection : No personal respiratory protective equipment normally required.  
If the occupational exposure limits cannot be met, in exceptional cases suitable respiratory equipment should be worn only for a short period of time.  
Recommended Filter type:  
A-P2 or ABEK-P2  
Respiratory protection complying with EN 141.
- Protective measures : Avoid contact with skin and eyes.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

- Appearance : liquid
- Colour : colourless
- Odour : alcohol-like
- Odour Threshold : not determined
- pH : Not applicable
- Melting point/freezing point : < -5 °C
- Decomposition temperature : No data available
- Boiling point/boiling range : ca. 80 °C
- Flash point : 27 °C  
Method: DIN 51755 Part 1
- Evaporation rate : No data available
- Flammability (solid, gas) : Not applicable
- Upper explosion limit : 17,5 %(V)  
Raw material
- Lower explosion limit : 2,1 %(V)  
Raw material
- Vapour pressure : ca. 50 hPa (20 °C)
- Vapour density : No data available
- Relative density : ca. 0,89 g/cm<sup>3</sup> (20 °C)
- Solubility(ies)

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Water solubility                      :    in all proportions (20 °C)

Partition coefficient: n-  
octanol/water                      :    Not applicable

Viscosity  
  Viscosity, dynamic                      :    not determined

Flow time                              :    < 15 s at 20 °C  
    Method: DIN 53211

Explosive properties                      :    No data available

Oxidizing properties                      :    No data available

### **9.2 Other information**

Self-ignition                              :    No data available

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## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

### **10.2 Chemical stability**

The product is chemically stable.

### **10.3 Possibility of hazardous reactions**

Hazardous reactions                      :    Vapours may form explosive mixture with air.

### **10.4 Conditions to avoid**

Conditions to avoid                      :    Heat, flames and sparks.

### **10.5 Incompatible materials**

Materials to avoid                        :    Strong acids and oxidizing agents

### **10.6 Hazardous decomposition products**

No decomposition if stored and applied as directed.

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

##### **Product:**

Acute oral toxicity                        :    Acute toxicity estimate: > 15.000 mg/kg  
Acute inhalation toxicity                :    Acute toxicity estimate: > 50 mg/l  
Acute dermal toxicity                      :    Acute toxicity estimate: > 10.000 mg/kg

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No skin irritation

**Ethanol:**

Rabbit, No skin irritation

**Serious eye damage/eye irritation****Product:**

Causes serious eye irritation. The toxicological data has been taken from products of similar composition., Expert judgement

**Respiratory or skin sensitisation****Components:****Propan-1-ol:**

Does not cause skin sensitisation. Guinea pig, OECD Test Guideline 406

**Ethanol:**

Did not cause sensitisation on laboratory animals. Maximisation Test, Guinea pig

**Germ cell mutagenicity****Components:****Propan-1-ol:**

Germ cell mutagenicity- Assessment : Not mutagenic in Ames Test

**Ethanol:**

Genotoxicity in vitro : OECD Test Guideline 471, Not mutagenic in Ames Test

Genotoxicity in vivo : Non mutagenic

Germ cell mutagenicity- Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

**Carcinogenicity****Components:****Propan-1-ol:**

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

**Ethanol:**

Carcinogenicity - Assessment : Did not show carcinogenic effects in animal experiments.

**Reproductive toxicity****Components:****Propan-1-ol:**

Effects on fertility : Rat, Inhalation, NOAEL: 8,6 mg/l

Effects on foetal development : Rat, Inhalation, NOAEL: 8,6 mg/l

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.

**Ethanol:**

Rat, Oral, NOAEL: 2.000 mg/kg

Reproductive toxicity - Assessment : In animal testing, risk of impaired fertility was shown only after



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assessment administration of very high doses of this substance.

**STOT - single exposure****Product:**

May cause drowsiness or dizziness.

**STOT - repeated exposure****Components:****Propan-1-ol:**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Ethanol:**

No data available

**Repeated dose toxicity****Components:****Ethanol:**

Rat, NOAEL: 1.730 mg/kg, LOAEL: 3.160 mg/kg, Oral90 d

**Aspiration toxicity**

No data available

**Further information****Product:**

Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

**SECTION 12: Ecological information****12.1 Toxicity****Product:**Toxicity to microorganisms : EC50 : 68.750 mg/l  
Method: OECD 209**Components:****Propan-1-ol:**Toxicity to fish : LC50 (Fish): 3.200 mg/l  
Exposure time: 96 hToxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 3.642 mg/l  
aquatic invertebrates Exposure time: 48 hToxicity to algae : NOEC (Chlorella pyrenoidosa (aglae)): 1.150 mg/l  
Exposure time: 48 hToxicity to daphnia and other : NOEC: > 100 mg/l  
aquatic invertebrates (Chronic toxicity) Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

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**Ethanol:**

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 8.140 mg/l  
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 5.000 mg/l  
Exposure time: 48 h

Toxicity to algae : IC50 (Scenedesmus quadricauda (Green algae)): > 100 mg/l  
Exposure time: 72 h

**12.2 Persistence and degradability****Product:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD 301D / EEC 84/449 C6

Chemical Oxygen Demand (COD) : 13.000 mg/l  
Test substance: 1 % solution

**Components:****Propan-1-ol:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 75 %  
Exposure time: 20 d

**Ethanol:**

Biodegradability : Result: Readily biodegradable.

**12.3 Bioaccumulative potential****Components:****Propan-1-ol:**

Bioaccumulation : Bioconcentration factor (BCF): 0,88  
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 0,43

**Ethanol:**

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: -0,14  
Method: Calculated value

**12.4 Mobility in soil****Components:****Propan-1-ol:**

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Mobility : Remarks: Mobile in soils

### **Ethanol:**

Mobility : Remarks: No data available

## 12.5 Results of PBT and vPvB assessment

### **Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

## 12.6 Other adverse effects

### **Product:**

Additional ecological information : No data is available on the product itself.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of the product according to the defined EWC (European Waste Code) No.

Contaminated packaging : Take empty packaging to the recycling plant.

Waste key for the unused product : EWC 070604

Waste key for the unused product(Group) : Waste material of HZVA from fats, lubricants, soaps, detergents, disinfectants and personal protection products.

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## SECTION 14: Transport information

### 14.1 UN number

IMDG : UN 1987  
IATA (Cargo) : UN 1987

### 14.2 UN proper shipping name

IMDG : ALCOHOLS, N.O.S.  
(Propan-1-ol, Ethanol)

IATA (Cargo) : ALCOHOLS, N.O.S.  
(Propan-1-ol, Ethanol)

### 14.3 Transport hazard class(es)

IMDG : 3  
IATA (Cargo) : 3

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Labels : 3  
EmS Code : F-E, S-D**IATA (Cargo)**Packing instruction (cargo aircraft) : 366  
Packing group : III  
Labels : Flammable Liquid**14.5 Environmental hazards****IMDG**

Marine pollutant : no

**14.6 Special precautions for user**Not applicable  
For personal protection see section 8.**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable for product as supplied.

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
P5c	FLAMMABLE LIQUIDS	5.000 t	50.000 t

Volatile organic compounds : Volatile organic compounds (VOC) content: 60 %  
Remarks: Directive 2010/75/EC on the limitation of emissions of volatile organic compounds

## Other regulations:

The surfactant(s) contained in this mixture complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.  
For further information see eSDS.

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the

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risks related to chemical agents at work.

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

**15.2 Chemical safety assessment**

Exempt

**SECTION 16: Other information****Full text of H-Statements**

H225 : Highly flammable liquid and vapour.  
 H318 : Causes serious eye damage.  
 H319 : Causes serious eye irritation.  
 H336 : May cause drowsiness or dizziness.

**Full text of other abbreviations**

Eye Dam. : Serious eye damage  
 Eye Irrit. : Eye irritation  
 Flam. Liq. : Flammable liquids  
 STOT SE : Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International

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Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### **Further information**

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No. 1272/2008

Flam. Liq. 3, H226                               : On basis of test data.  
Eye Irrit. 2, H319                               : Calculation method  
STOT SE 3, H336                               : Calculation method

|| Changes compared with the previous edition!!!

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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