

SAFETY DATA SHEET (EC) 1907/2006

ETHINYLESTRADIOL

Version: 10.9 - 2008.02.29

1. Identification of the substance/preparation and of the company/undertaking

- 1.1 Trade name: ETHINYLESTRADIOL
- 1.2 Use: pharmaceutical drug substance
- 1.3 Company: Bayer Schering Pharma AG
13342 Berlin, Germany
Telephone: +49-30-468-15343
E-mail: msds@bayerscheringpharma.de
- 1.4 Emergency telephone number: Schering fire brigade
Telephone: +49-30-468-14208

2. Hazards identification

- 2.1 May impair fertility.
Possible risk of harm to the unborn child.
Limited evidence of a carcinogenic effect.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
May cause harm to breastfed babies.
- 2.2 May cause dust explosions in fine crystalline form.

3. Composition/information on ingredients

Chemical characterization

17alpha-Ethynyl-1,3,5(10)-estratriene-3,17beta-diol

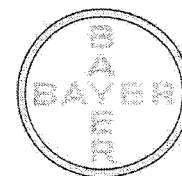
Formula: C₂₀ H₂₄ O₂

CAS-No.: 57-63-6

EC-No.: 200-342-2

4. First-aid measures

- General advice: Take off contaminated clothing and shoes immediately.
Call a physician immediately.
- Skin contact: In case of skin contact with powders or solution immediately rinse the areas affected continuously with water and then wash with soap and water.
Do NOT use solvents or thinners.
Use protective skin cream before handling the product.



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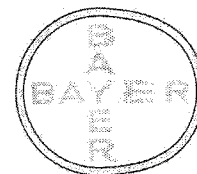
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Ingestion:	Rinse mouth.

5. Fire-fighting measures

- | | | |
|-----|---|--|
| 5.1 | Suitable extinguishing media: | Water spray jet
dry powder
foam
carbon dioxide (CO ₂) |
| | Unsuitable extinguishing agents: | high volume water jet |
| 5.2 | Thermal decomposition: | carbon dioxide (CO ₂)
carbon monoxide |
| 5.3 | Special protective equipment for fire-fighters: | In the event of fire, wear self-contained breathing apparatus. |
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6. Accidental release measures

Methods for cleaning up:	Use mechanical handling equipment. Avoid dust formation. Pack separately and send back to manufacturer. Flush with plenty of water. Dispose of wastewater according to paragraph 13.
Additional advice:	No conditions to be specially mentioned.



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7. Handling and storage

7.1 Handling

Hygiene measures: Wash hands and face before breaks and immediately after handling the product.
Use protective skin cream before handling the product.
Take off contaminated clothing and shoes immediately.
Smoking, eating and drinking should be prohibited in the application area.
Shower or bathe at the end of working.

Advice on safe handling: In case of formation of dust during work use dust collection by exhaust ventilation.
All dust at work place and surround have to be remove by exhausting.
Measures must be taken to prevent dust explosion when processing in fine crystalline form.
Avoid contact with skin, eyes and clothing.

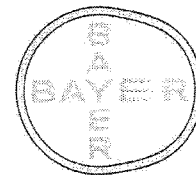
7.2 Storage

Requirements for storage areas and containers: Keep container tightly closed.
Protect from light.
Keep in a dry place.
Keep away from heat.

8. Exposure controls/personal protection

8.1 Exposure limit(s)

Control parameters	Basis
0,0001 mg/m ³	SOEL (Schering Occupational Exposure Limit)



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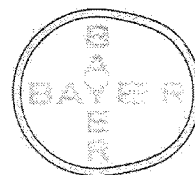
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8.2 Personal protective equipment

Respiratory protection:	respirator with P3 filter
Eye protection:	safety glasses with side-shields
Hand protection:	During the handling of the substance according to the intended use protection gloves from nitrile rubber have been proved. During the handling of pure solid substances or powder mixtures a permeation of the rubber material is not to be expected. In case of doubt, especially during handling of the substance together with organic solvents, the stability of the protection gloves has to be clarified with the manufacturer.
Skin and body protection:	dust impervious protective suit Choose body protection according to the amount and concentration of the dangerous substance at the work place.

9. Physical and chemical properties

9.1 Form:	crystalline
9.2 Colour:	off-white
9.3 Odour:	odourless
9.4 Change in physical state	
Melting point/range :	179,0 - 181,0 °C
9.5 Density / Bulk density	
	no data available
9.6 Vapour pressure:	< 0,00001 mPa at 25 °C
9.7 Viscosity	
	no data available
9.8 Solubility / Miscibility	
Water solubility:	0,019 g/l at 25 °C
9.9 log Pow:	4,2
9.10 pH:	no data available
9.11 Flash point:	no data available

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9.12 Ignition temperature: no data available

9.13 Explosion limits:
no data available

9.14 Dust explosion class: 2 (2 µm)

9.15 Minimum ignition energy: < 3 mJ (10 µm)

9.16 Hygroscopicity: hygroscopic

10. Stability and reactivity

10.1 Conditions to avoid: no data available

10.2 Materials to avoid: no data available

10.3 Hazardous decomposition products

Thermal decomposition: carbon dioxide (CO₂)
carbon monoxide

Hydrolytic decomposition: none reasonably foreseeable

11. Toxicological information

Acute oral toxicity: LD50 rat
Dose: > 2.500 mg/kg

Acute oral toxicity: LD50 mouse
Dose: >= 2.500 mg/kg

Carcinogenic: 3

Toxic to reproduction (RE): 3

Toxic to reproduction (RF): 1

Toxicological assessment**Mode of action:**

Steroid estrogen.

Acute toxicity:

Because of its low acute toxicity as demonstrated in animal experiments, no risk of toxicity is to be expected after administration of a single dose of ethinylestradiol.



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Effects following repeated contact:

Long-term tolerance and/or tumorigenicity studies following oral administration of ethinylestradiol have been carried out in mice, rats, dogs and monkeys. Effects typical of estrogens were already to be seen in these species in the lowest dose range tested (between 0,001 and 0,01 mg ethinylestradiol/kg BW/day). In some cases these effects were species-specific. For example, weight increases were observed in rodents, stimulation of endometrial growth in all species. However, no organotoxic effects occurred even at the maximum doses tested (between 0,02 and 10 mg ethinylestradiol/ kg BW/day p.o. depending on the species and the length of the study). Adverse effects typical for estrogens in general, such as water retention and edema, disturbed liver function, weight increases, hypercalcemia and diverse disturbances of the general state of health, are to be reckoned with after repeated oral, inhalatory or skin contact with ethinylestradiol in humans. In addition, endocrine-pharmacological effects (e.g. disturbed sexual function and feminization in men, cycle disorders in women) have to be reckoned with after repeated exposure.

Mutagenic effect:

Neither in vitro nor in vivo studies have provided any indication of a mutagenic potential.

Tumorigenic effect:

On the basis of tumorigenicity studies with mice, rats, dogs and monkeys, ethinylestradiol is not expected to have any tumorigenic potential relevant to humans in the doses intended for its proper use in oral contraceptives or in hormone therapy. Here the usual doses are in the range 20 to 50 µg ethinylestradiol/human/day. However, in handling ethinylestradiol, it should be borne in mind that sex steroids can stimulate the growth of certain hormone-dependent tissues and tumors.

Reproduction toxicology:

Endocrine-pharmacological effects of ethinylestradiol that can give rise to reversible fertility disorders (on single administration in humans) have been described for doses as low as 80 µg/human/day. Embryotoxicity studies in rats and rabbits have provided no indication of any teratogenic potential. However, in animal experiments ethinylestradiol causes increased prenatal mortality and disturbances in male sexual differentiation. The studies available have shown that ethinylestradiol does not induce abortion in pregnant women even at very high doses and that its administration does not involve an increased risk of deformity. Thus, on uptake of ethinylestradiol by pregnant women, the risk of an embryo-lethal effect or of deformity is to be regarded as slight. In principle, such effects certainly appear possible at extremely high estrogen doses. In addition, milk production can be inhibited in nursing mothers. There is also a possibility that estrogens can be taken up by children in the milk and their development be impaired.

Sensitization:

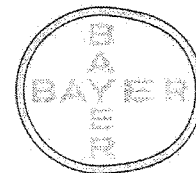
No studies are available on local tolerance or contact-sensitizing effects. However, on the basis of, on the one hand, many years of experience of handling ethinylestradiol and, on the other, the widespread human use of the structurally very similar natural estrogen 17β-estradiol in transdermal patches (Estraderm(R) TTS), local irritation or a sensitizing effect from the substance appear to be very improbable.

12. Ecological information

Ecotoxicity effects

Toxicity to daphnia:

EC50
Species: Daphnia
Dose: 6,4 mg/l
Exposure time: 48 h



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Toxicity to algae: EC50
Species: desmodesmus subspicatus
Dose: 0,13 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201, Paris, 1981

Toxicity to bacteria: EC50
Species: Pseudomonas putida
Dose: > 20 mg/l
Exposure time: 17 h

Biodegradability

Aquatic: Inherently biodegradable.

13. Disposal considerations

Product: Dissolve or suspend cautiously in a flammable solvent and incinerate in a combustion plant for chemical waste.

Waste code: 07 05 08

14. Transport information

14.1 Land transport - ADR

Class: 9
Risk No.: 90
UN-No: 3077
ADR/RID-Labels: 9
Packaging group: III
Description of the goods: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(ETHINYLESTRADIOL)

14.2 Sea transport - IMDG

IMDG-Code: 9
EmS:
UN-No: 3077
Packaging group: III
Marine pollutant: no data available
Description of the goods: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
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14.3 Air transport ICAO/IATA

IATA-DGR: 9
UN/ID No.: 3077
Packaging group: III
Description of the goods: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
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15. Regulatory information

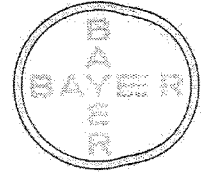
15.1 Labelling according to EEC Directive

Symbol(s):	T N	Toxic Dangerous for the environment
R-phrases(s):	R60 R63 R40 R50/53 R64	May impair fertility. Possible risk of harm to the unborn child. Limited evidence of a carcinogenic effect. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause harm to breastfed babies.
S-phrases(s):	S53 S45 S60	Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). This material and its container must be disposed of as hazardous waste.

15.2 National legislation

Germany

Water contaminating class (Germany):	3 Appendix 3 VWVWS 5/99
German storage class:	6.1A - Combustible substances, toxic
Pharmaceutical substance class:	G4 Determination from doses for humans (SOEL)



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16. Other information

Further information

Changes made since the last version are highlighted in the margin. This version replaces the previous version.

The above information is based on our present knowledge and experience and is intended as a description of the safety requirements for our product. It is not intended as an assurance that the product in question has certain properties.
