MATERIAL SAFETY DATA SHEET

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION
Bayer Emergency Phone: Call Chemtrec
Bayer Information Phone: (800) 662-2927

1. Product and Company Identification

Product Name: BAYSEAL OC
Material Number: 57146153
Chemical Family: Polyol System

2. Hazards Identification

Emergency Overview

WARNING! Color: Yellow Form: liquid viscous Odor: Amine, ammoniacal. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. May cause nausea or dizziness. Causes respiratory tract irritation. Causes skin irritation. Causes eye irritation. May cause a temporary fogging of the eyes. When this product is sprayed, a full-face or hood-type supplied air respirator is required.

Potential Health Effects

Primary Routes of Entry: Inhalation, Eye Contact, Skin Contact

Medical Conditions Aggravated by Exposure: Eye disorders, Respiratory disorders, Skin disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Component: Tris-(2-chloroisopropyl)-phosphate
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: Surfactant
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

Chronic Inhalation
For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
May cause lung damage.

Skin
Acute Skin
For Component: Tris-(2-chloroisopropyl)-phosphate
May cause slight irritation.

For Component: Surfactant
May cause irritation with symptoms of reddening and itching. Slightly toxic by skin absorption.

For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

For Component: 2-(2-(dimethylamino)ethoxy) Ethanol
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

Chronic Skin
For Component: Surfactant
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

Eye
Acute Eye
For Component: Tris-(2-chloroisopropyl)-phosphate
Not expected to be irritating.

For Component: Surfactant
Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause corneal injury.

For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
Vapors can cause temporary corneal edema with symptoms of blurred vision or the appearance of halos around bright objects.

For Component: 2-(2-(dimethylamino)ethoxy) Ethanol
Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

Chronic Eye
For Component: Surfactant
Prolonged vapor contact may cause conjunctivitis.

For Component: Bis(2-dimethylaminoethyl)ether (BDMAEE)
Prolonged vapor contact may cause conjunctivitis.

Ingestion
Acute Ingestion
For Component: Tris-(2-chloroisopropyl)-phosphate
May be harmful if swallowed. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. Moderately toxic by ingestion.

For Component: Surfactant
Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs). Moderately toxic by ingestion.
For Component: **Bis(2-dimethylaminoethyl)ether (BDMAEE)**
Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs).

**Chronic Ingestion**
For Component: **Tris-(2-chloroisopropyl)-phosphate**
May cause liver damage. May cause kidney damage.

**Carcinogenicity:**
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

### 3. Composition/Information on Ingredients

#### Hazardous Components

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 30%</td>
<td>Tris-(2-chloroisopropyl)-phosphate</td>
<td>13674-84-5</td>
</tr>
<tr>
<td>7 - 13%</td>
<td>Surfactant</td>
<td>CAS# is a trade secret</td>
</tr>
<tr>
<td>1 - 5%</td>
<td>Bis(2-dimethylaminoethyl)ether (BDMAEE)</td>
<td>3033-62-3</td>
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<tr>
<td>1 - 5%</td>
<td>2-(2-(dimethylamino)ethoxy) Ethanol</td>
<td>1704-62-7</td>
</tr>
</tbody>
</table>

### 4. First Aid Measures

**Eye Contact**
In case of contact, flush eyes with plenty of water for at least 15 minutes. Call a physician immediately.

**Skin Contact**
In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention.

**Inhalation**
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**Ingestion**
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

### 5. Fire-Fighting Measures

**Suitable Extinguishing Media:** carbon dioxide (CO2), dry chemical, foam, water spray for large fires.

**Special Fire Fighting Procedures**
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

**Unusual Fire/Explosion Hazards**
The reaction of this product with polymeric MDI ("A" side) will release heat (e.g., it is an exothermic reaction). Thus, spraying foam too thickly in a single lift, or not allowing sufficient time between lifts, can result in excessive heat generation to the point where the foam may char, smolder or burn. Refer to the
appropriate BaySystems technical datasheet for application instructions.

6. Accidental release measures

Spill and Leak Procedures
Evacuate and keep unnecessary people out of spill area. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill. Cover spill with inert material (e.g., dry sand or earth) and collect for proper disposal.

7. Handling and Storage

Storage Temperature:
maximum: 50 °C (122 °F)

Storage Period
6 Months

Handling/Storage Precautions
Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Material is hygroscopic and may absorb small amounts of atmospheric moisture. If contamination with isocyanates is suspected, do not reseal containers. Do not get on skin or clothing. Do not get in eyes. Do not breathe vapours or spray mist.

8. Exposure Controls / Personal Protection

When this product is heated or spray applied, amine vapors can be released.

Bis(2-dimethylaminoethyl)ether (BDMAEE) (3033-62-3)

US. ACGIH Threshold Limit Values
  Time Weighted Average (TWA): 0.05 ppm
  Short Term Exposure Limit (STEL): 0.15 ppm

Skin designation: Can be absorbed through the skin.

Industrial Hygiene/Ventilation Measures
When handling this product, ventilation of the work area is recommended.

Respiratory Protection
When this product is sprayed in combination with polymeric MDI ("A" side), a full-face or hood-type supplied air respirator operated in the positive pressure or continuous flow mode is required. For exterior spray applications where the use of supplied air respiratory protection may create a safety hazard (e.g., roof applications), an air purifying respirator with combination organic vapor/particulate (P100) cartridges may be substituted for a supplied air respirator. When handling the liquid product, particularly if heated or in a confined area, an air purifying respirator with combination organic vapor/particulate (P100) cartridges is recommended. The respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). When APRs are used, (a) the cartridges must be equipped with end-of-service life indicators (ESLI) certified by NIOSH, or (b) a change out schedule,
based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program.

**Hand Protection**
When this product is sprayed in combination with polymeric MDI ("A" side), fabric gloves coated in nitrile, neoprene, butyl or PVC are recommended. When handling liquid product, nitrile, neoprene, butyl or PVC gloves are recommended.

**Eye Protection**
When this product is sprayed in combination with polymeric MDI ("A" side), eye protection will be provided by the full-face or hood-type air supplied respirator as mentioned above in the respiratory protection section. When handling liquid product, chemical safety goggles or safety glasses with side-shields are required.

**Skin and body protection**
When this product is sprayed in combination with polymeric MDI ("A" side), a disposable full body suit (e.g., Tyvek, Kleenguard, etc.) with attached hood and disposable over-boots are required. When handling liquid product, wear cloth work clothing including long pants and long-sleeved shirts. If the potential for splash to the body exists, impermeable protective clothing is recommended.

**Additional Protective Measures**
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form:</td>
<td>liquid</td>
</tr>
<tr>
<td>Appearance:</td>
<td>viscous</td>
</tr>
<tr>
<td>Color:</td>
<td>Yellow</td>
</tr>
<tr>
<td>Odor:</td>
<td>Amine, ammoniacal</td>
</tr>
<tr>
<td>pH:</td>
<td>8.5 - 10.5</td>
</tr>
<tr>
<td>Freezing Point:</td>
<td>Less than 0 °C (32 °F)</td>
</tr>
<tr>
<td>Boiling Point/Range:</td>
<td>Greater than 149 °C (300.2 °F)</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>&gt; 93.33 °C (&gt; 200 °F)</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>1.11 - 1.13</td>
</tr>
<tr>
<td>Solubility in Water:</td>
<td>Partially soluble</td>
</tr>
<tr>
<td>Viscosity, Dynamic:</td>
<td>165 - 180 cP @ 25 °C (77 °F)</td>
</tr>
</tbody>
</table>

### 10. Stability and Reactivity

**Hazardous Reactions**
Hazardous polymerization does not occur. The reaction of this product with polymeric MDI ("A" side) will release heat (e.g., it is an exothermic reaction). Thus, spraying foam too thickly in a single lift, or not allowing sufficient time between lifts, can result in excessive heat generation to the point where the foam may char, smolder or burn. Refer to the appropriate BaySystems technical datasheet for application instructions.

**Stability**
Stable

**Materials to avoid**
oxidizing agents, Isocyanates
**Hazardous decomposition products**
By Fire and Thermal Decomposition: Carbon Dioxide; Carbon Monoxide; Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, other potentially toxic fumes

### 11. Toxicological Information

**Toxicity Data for Tris-(2-chloroisopropyl)-phosphate**

**Acute Oral Toxicity**
LD50: 632 mg/kg (Rat)

**Acute Inhalation Toxicity**
LC50: > 17,800 mg/l, aerosol, 1 hrs (rat, Male/Female)

**Acute dermal toxicity**
LD50: > 5,000 mg/kg (rabbit, Male/Female)

**Skin Irritation**
Human, Patch Test, No skin irritation
rabbit, No skin irritation

**Eye Irritation**
rabbit, Draize, Exposure Time: 24 hrs, Mild eye irritation
rabbit, No eye irritation

**Sensitization**
dermal: non-sensitizer (guinea pig, Maximisation Test (GPMT))
dermal: non-sensitizer (Human, Patch Test)

**Repeated Dose Toxicity**
90 Days, oral: NOAEL: 36 mg/kg, (Rat, male)

**Mutagenicity**
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported.
Mammalian cell - gene mutation assay: positive (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with)
Positive and negative results were reported.

**Toxicity to Reproduction/Fertility**
Other method, inhalation, daily, (rat, male)
Reproductive effects have been observed in animal studies.

**Developmental Toxicity/Teratogenicity**
rat, female, oral, gestation, daily, NOAEL (teratogenicity): > 1%, NOAEL (maternal): > 1%
No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

**Toxicity Data for Surfactant**

**Acute Oral Toxicity**
LD50: 1,000 - 1,700 mg/kg (Rat)
LD50: 2,380 mg/kg (Rat)

**Acute dermal toxicity**
LD50: 1.4 - 3 ml/kg (rabbit)
Skin Irritation
rabbit, Mild skin irritation

Eye Irritation
rabbit, Severely irritating

Sensitization
dermal: non-sensitizer (Human)

Repeated Dose Toxicity
2 years, oral: NOAEL: 40 mg/kg, (Dog, )
2 years, oral: NOAEL: 200 mg/kg, (Rat, )

Carcinogenicity
Rat, oral, 2 years, daily
Did not show carcinogenic effects in animal experiments.

Toxicity to Reproduction/Fertility
Three generation study, oral, (Rat, Male/Female) NOAEL (parental): 200 ppm, NOAEL (F1): 200 ppm,
NOAEL (F2): 200 ppm
No effects on Reproductive parameters observed at doses tested.
Other method, oral, (Rat) NOAEL (parental): 2000 ppm,

Developmental Toxicity/Teratogenicity
Rat, oral, NOAEL (teratogenicity): 200 ppm, NOAEL (maternal): 200 ppm
Fetotoxicity seen only with maternal toxicity. No Teratogenic effects observed at doses tested.

Toxicity Data for Tetrabromophthalate Diol
Acute Oral Toxicity
LD50: > 10,000 mg/kg (Rat)

Acute Inhalation Toxicity
LC50: > 0.008 mg/l, (rat)

Acute dermal toxicity
LD50: > 20,000 mg/kg (Rat)

Skin Irritation
rabbit, Mild skin irritation

Eye Irritation
rabbit, Mild eye irritation

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative

Toxicity Data for Polyether Polyol
Acute Oral Toxicity
LD50: approximately 4,000 mg/kg (rat)

Acute Inhalation Toxicity
LC50: Greater than 200 mg/l, 1 h (rat)
Estimated Value

Acute dermal toxicity
LD50: Greater than 2,000 mg/kg (rabbit)
Estimated Value

**Skin Irritation**
Non-irritating

**Eye Irritation**
Non-irritating

**Toxicity Data for Bis(2-dimethylaminoethyl)ether (BDMAEE)**

**Acute Oral Toxicity**
LD50: 571 mg/kg (Rat)

**Acute Inhalation Toxicity**
LC50: 117 ppm, 6 hrs (Rat)

**Acute dermal toxicity**
LD50: 280 uL/kg (rabbit)
LD50: 238 - 750 mg/kg (rabbit)

**Skin Irritation**
rabbit, Draize, Exposure Time: 24 hrs, Severely irritating

**Eye Irritation**
rabbit, Draize, Severely irritating

**Developmental Toxicity/Teratogenicity**
rabbit, Female, dermal,
No Teratogenic effects observed at doses tested.

**Toxicity Data for 2-(2-(dimethylamino)ethoxy) Ethanol**

**Acute Oral Toxicity**
LD50: 2,000 - 5,000 mg/kg (rat)

**Acute dermal toxicity**
LD50: 1,000 - 2,000 mg/kg (rabbit)

**Skin Irritation**
rabbit, Corrosive

**Eye Irritation**
rabbit, Corrosive

**Toxicity Data for Dipropylene Glycol**

**Acute Oral Toxicity**
LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**
LC0: 6 - 8 mg/l, aerosol, 8 hrs (rat)

**Acute dermal toxicity**
LD50: > 5,000 mg/kg (rabbit)

**Skin Irritation**
rabbit, Exposure Time: 24 hrs, Slightly irritating

**Eye Irritation**
rabbit, Non-irritating

**Sensitization**
dermal: non-sensitizer (Human, Magnusson/Kligmann (Maximization Test))

**Repeated Dose Toxicity**
77 Days, Oral: NOAEL: 5 %, (rat, )

**Mutagenicity**
Genetic Toxicity in Vitro:
Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation: with/without)

**Toxicity to Reproduction/Fertility**
Fertility Screening, oral, daily, (rabbit, female) NOAEL (parental): 1,200 mg/kg,
No effects on Reproductive parameters observed at doses tested.

**Developmental Toxicity/Teratogenicity**
rat, female, oral, gestation, daily, NOAEL (teratogenicity): 5,000 mg/kg, NOAEL (maternal): 800 mg/kg,
No Teratogenic effects observed at doses tested.
rabbit, female, oral, gestation, daily, NOAEL (teratogenicity): 1,200 mg/kg, NOAEL (maternal): 1,200 mg/kg,
No fetotoxicity observed at doses tested.

### 12. Ecological Information

**Ecological Data for Tris-(2-chloroisopropyl)-phosphate**

**Biodegradation**
Aerobic, 0 %, Exposure time: 28 Days, Not readily biodegradable.

**Bioaccumulation**
Carp, Exposure time: 42 Days, approximately 0.8 - 2.8 BCF

**Acute and Prolonged Toxicity to Fish**
LC50: approximately 84 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)
LC50: 51 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC50: 30 mg/l (Guppy (Poecilia reticulata), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**
EC50: approximately 131 mg/l (Water flea (Daphnia magna), 48 hrs)

**Toxicity to Aquatic Plants**
EC50: 45 mg/l, End Point: biomass (Green algae (Scenedesmus subspicatus), 72 hrs)
EC50: 41 - 55 mg/l, End Point: biomass (Green algae (Selenastrum capricornutum), 96 h)

**Toxicity to Microorganisms**
EC50: 295 mg/l, (Photobacterium phosphoreum, 30 min)
EC50: 784 mg/l, (Activated sludge microorganisms, 3 hrs)

**Ecological Data for Surfactant**

**Biological Oxygen Demand (BOD)**
11 - 23 %
20 Days, 45 - 48 %
Theoretical Biological Oxygen Demand (ThBOD)
2,300 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 5 - 7.3 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
LC50: 7.5 - 14.7 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Microorganisms
IC50: > 1,000 mg/l, (Other bacteria, 17 hrs)

Ecological Data for Tetrabromophthalate Diol
Acute and Prolonged Toxicity to Fish
LC50: 12 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Ecological Data for Polyether Polyol
Acute and Prolonged Toxicity to Fish
LC50: Greater than 100 mg/l (Other fish, 96 h)
Based on a similar product.

Ecological Data for Dipropylene Glycol
Biodegradation
aerobic, 16 %, Exposure time: 28 Days
aerobic, 100 %, Exposure time: 1 Days

Biological Oxygen Demand (BOD)
5 Days, 92,268 mg/l

Chemical Oxygen Demand (COD)
1,840 mg/g

Theoretical Biological Oxygen Demand (ThBOD)
0.49

Bioaccumulation
Carp, Exposure time: 42 Days, 0.3 - 1.4 BCF

Acute and Prolonged Toxicity to Fish
LC50: > 5,000 mg/l (Goldfish (Carassius auratus), 24 hrs)

Toxicity to Microorganisms
EC10: 15,400 mg/l, (Pseudomonas putida, 16 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.
14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
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Material Name: BAYSEAL OC    Article Number: 57146153
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California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

**NFPA 704M Rating**

<table>
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<th>Category</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>Health</td>
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<tr>
<td>Flammability</td>
<td>1</td>
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<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
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</table>

**HMIS Rating**

<table>
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<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2*</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

The method of hazard communication for Bayer MaterialScience LLC is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Bayer MaterialScience LLC as a customer service.

Contact Person: Product Safety Department
Telephone: (412) 777-2835
MSDS Number: 000000008790
Version Date: 10/31/2008
Report Version: 5.2

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Changes since the last version will be highlighted in the margin. This version replaces all previous versions.