

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/29/2020

Reviewed on 03/29/2020

* 1 Identification

Product Identifier**Trade Name: Precision Calibration Gas Mixture****Product Number:** G-7715**Relevant identified uses of the substance or mixture and uses advised against:**

Used for calibration of gas measuring devices. Not suitable for human consumption.

Product Description: Calibration gas mixture consisting of Ethylene Oxide and Carbon Dioxide.**Details of the Supplier of the Safety Data Sheet:****Manufacturer/Supplier:**

Gasco Affiliates, LLC

320 Scarlett Blvd.

Oldsmar, FL 34677

TELEPHONE NUMBER: (800) 910-0051

FAX NUMBER: (866) 755-8920

E-MAIL: info@gascogas.com

Emergency telephone number:

Inside the US: 1-833-723-3267 (Chemtrec, 24 hours)

Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)

2 Hazard(s) Identification

Classification of the substance or mixture:

Flame

Flam. Gas 1 H220 Extremely flammable gas.



Gas cylinder

Press. Gas H280 Contains gas under pressure; may explode if heated.



Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



Health hazard

Muta. 1B H340 May cause genetic defects.

Carc. 1B H350 May cause cancer.

Repr. 1A H360 May damage fertility or the unborn child.

STOT RE 1 H372 Causes damage to the nervous system through prolonged or repeated exposure.



Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

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Trade Name: Precision Calibration Gas Mixture

Acute Tox. 4 H302 Harmful if swallowed.

Simple Asphyxiant May displace oxygen and cause rapid suffocation.

· **Label elements:**· **Hazard pictograms:**· **Signal word:** Danger· **Hazard-determining components of labeling:**

Ethylene oxide

· **Hazard statements:**

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H302 Harmful if swallowed.

H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.

H340 May cause genetic defects.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

H372 Causes damage to the nervous system through prolonged or repeated exposure.

May displace oxygen and cause rapid suffocation.

· **Precautionary statements:**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P260 Do not breathe dusts or mists.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

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

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P311 Call a poison center/doctor.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).

P314 Get medical advice/attention if you feel unwell.

P363 Wash contaminated clothing before reuse.

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

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P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P410+P403 Protect from sunlight. Store in a well-ventilated place.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Unknown acute toxicity:**
90 % of the mixture consists of component(s) of unknown toxicity.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMS-ratings (scale 0 - 4)**

HEALTH	*3	Health = *3
FIRE	4	Fire = 4
REACTIVITY	0	Physical Hazard = 0

- **Hazard(s) not otherwise classified (HNOC):** None known

* 3 Composition/Information on Ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of substances listed below with non-hazardous additions.

· Dangerous Components:

CAS: 124-38-9 RTECS: FF 6400000	Carbon Dioxide ⚠ Press. Gas, H280; Simple Asphyxiant	90-92.782%
CAS: 75-21-8 RTECS: KX 2450000	Ethylene oxide ⚠ Flam. Gas 1, H220; ⚠ Press. Gas, H280; ⚠ Acute Tox. 3, H301; ⚠ Acute Tox. 3, H331; ⚠ Muta. 1B, H340; ⚠ Carc. 1B, H350; Repr. 1A, H360; ⚠ STOT RE 1, H372; ⚠ Skin Corr. 1A, H314; ⚠ Eye Dam. 1, H318; ⚠ STOT SE 3, H335-H336; ⚠ Aquatic Acute 3, H402	7.218 - 10%

4 First-Aid Measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may occur after exposure to dust, fumes or particulates; seek medical attention if feeling unwell.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in the side position for transportation.
- **After skin contact:**
In cases of contact with liquified material, frostbite may occur. Immerse frostbite in cool-warm water and seek medical attention.
Immediately wash with water and soap and rinse thoroughly.
If skin irritation occurs, consult a doctor.
- **After eye contact:**
Not anticipated under normal use.

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Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:**

Not a normal route of entry.

If swallowed and symptoms occur, consult a doctor.

- **Information for doctor**

- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

* 5 Fire-Fighting Measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

Use fire fighting measures that suit the environment.

Use water spray to cool fire-exposed containers.

- **For safety reasons unsuitable extinguishing agents:** No further relevant information.

- **Special hazards arising from the substance or mixture:**

Closed containers may explode when exposed to extreme heat.

If incinerated, product will release the following toxic fumes: Oxides of Carbon.

- **Advice for firefighters**

Certain variations of this gas mixture are flammable. Containers, when involved in fire, may rupture or burst in the heat of the fire.

- **Special protective equipment for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**

Treat any fumes as toxic.

Ensure adequate ventilation.

Keep people at a distance and stay upwind.

Wear protective equipment. Keep unprotected persons away.

In a confined area, NIOSH approved respiratory protection may be required.

- **Environmental precautions:** Inform authorities in case of gas release.

- **Methods and material for containment and cleaning up:**

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

- **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and Storage

- **Handling**

- **Precautions for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms due to the potential for oxygen deficiency (simple asphyxiation). Do not attempt to adjust, repair or in any other way modify the cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

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- **Information about protection against explosions and fires:**

Do not cut, grind or weld on container that contains or contained product.

Do not spray on a naked flame or any incandescent material.

Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

Keep protective respiratory device available.

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

Store away from strong oxidizing agents, strong bases, phosphorous, organic materials and powdered metals and Zinc.

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

Cylinders should be firmly secured to prevent falling or being knocked over. Cylinders must be protected from the environment, and preferably kept at room temperature. Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a "first-on, first-out" inventory system to prevent full containers from being stored for long periods of time.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

- **Specific end use(s):** No further relevant information available.

8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.

- **Control parameters:**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

- **Components with occupational exposure limits:**

124-38-9 Carbon Dioxide

PEL Long-term value: 9000 mg/m³, 5000 ppm

REL Short-term value: 54,000 mg/m³, 30,000 ppm
Long-term value: 9000 mg/m³, 5000 ppm

TLV Short-term value: 54,000 mg/m³, 30,000 ppm
Long-term value: 9000 mg/m³, 5000 ppm

75-21-8 Ethylene oxide

PEL Short-term value: 5 ppm
Long-term value: 1 ppm
see 29 CFR 1910.1047(c)

REL Long-term value: 0.18 mg/m³, <0.1 ppm
Ceiling limit value: 9* mg/m³, 5* ppm
See Pocket Guide App. A; *10-min/day

TLV Long-term value: 1.8 mg/m³, 1 ppm

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

- **Exposure controls:**

- **Personal protective equipment**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing and wash before reuse.

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Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **Breathing equipment:**



Suitable respiratory protective device recommended.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Select glove material based on penetration times, rates of diffusion and degradation.

· **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material:**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:**



Protective work clothing

9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Gaseous

Color:

Clear, colorless

· **Odor:**

Rotten

· **Odor threshold:**

Not determined.

· **pH-value:**

Not available

· **Change in condition**

Melting point/Melting range:

Not determined.

Boiling point/Boiling range:

Not determined.

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- **Flash point:** None
- **Flammability (solid, gaseous):** Not determined.
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **Danger of explosion:** Explosive with or without contact with air.
- **Explosion limits:**
 - Lower:** Not determined.
 - Upper:** Not determined.
- **Vapor pressure:** Not determined.
- **Density:**
 - Relative density:** Not determined.
 - Vapor density:** Not determined.
 - Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with:**
 - Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not determined.
 - Kinematic:** Not determined.
- **Other information:** No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat, flame and ignition sources.
- **Incompatible materials:** Strong oxidizing agents, alcohols, ammonia, Alkali metals, reactive metals, and metal salts.
- **Hazardous decomposition products:** Carbon Oxides.

11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

75-21-8 Ethylene oxide

Oral	LD50	72 mg/kg (Rat)
Inhalative	LC50/4 h	2671 mg/l (Rat)
	LC50/96 hours	84 mg/l (Cyprinodon variegatus (minnow))

- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
Causes serious eye irritation.

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· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Irritant

Carcinogenic

The product can cause inheritable damage.

· **Carcinogenic categories:**

· **IARC (International Agency for Research on Cancer):**

Group 1 - Carcinogenic to humans

Group 2A - Probably carcinogenic to humans

Group 2B - Possibly carcinogenic to humans

Group 3 - Not classifiable as to its carcinogenicity to humans

Group 4 - Probably not carcinogenic to humans

75-21-8	Ethylene oxide	1
· NTP (National Toxicology Program):		
75-21-8	Ethylene oxide	K
· OSHA-Ca (Occupational Safety & Health Administration):		
75-21-8	Ethylene oxide	

12 Ecological Information

- **Toxicity:** The hazards for the aquatic environment are unknown.
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

13 Disposal Considerations

- **Waste treatment methods**
- **Recommendation:**
Release all residual gas pressure in a well ventilated area. Verify the cylinder is completely empty (0 PSIG).
Remove or cover any hazard labels. Return empty cylinder for recycling.
NOTE: Check with the local waste authority before placing any gas cylinder into waste container for pickup.
GASCO discourages the consumer to return all cylinders.
- **Waste disposal key:** The U.S. EPA has not published waste disposal numbers for this product's components.
- **Uncleaned packaging**
- **Recommendation:** Return cylinder and unused product to supplier.

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Trade Name: Precision Calibration Gas Mixture**14 Transport Information**

- **UN-Number:** UN1954
- **DOT, ADR/ADN, IMDG, IATA** UN1954
- **UN proper shipping name:** Compressed gas, flammable, n.o.s.
- **DOT** UN1954 Compressed gas, flammable, n.o.s.
- **ADR/ADN** COMPRESSED GAS, FLAMMABLE, N.O.S.
- **IMDG, IATA**
- **Transport hazard class(es):**

· **DOT**

- **Class:** 2 Gases
- **Label:** 2.1

· **ADR/ADN**

- **Class:** 2 1F Gases
- **Label:** 2.1

· **IMDG, IATA**

- **Class:** 2 Gases
- **Label:** 2.1
- **Packing group:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **Environmental hazards:** Not applicable.
- **Special precautions for user:** Warning: Gases
- **Hazard identification number (Kemler code):** 23
- **EMS Number:** F-D,S-U
- **Stowage Category** D
- **Stowage Code** SW2 Clear of living quarters.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
- **Transport/Additional information:**
- **DOT**
- **Quantity limitations:** On passenger aircraft/rail: Forbidden
On cargo aircraft only: 150 kg

· **ADR/ADN**

- **Excepted quantities (EQ):** Code: E0
Not permitted as Excepted Quantity

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Trade Name: Precision Calibration Gas Mixture

- **IMDG**
- **Limited quantities (LQ):** 0
- **Excepted quantities (EQ):** Code: E0
Not permitted as Excepted Quantity
- **UN "Model Regulation":** UN 1954 COMPRESSED GAS, FLAMMABLE, N.O.S., 2.1

15 Regulatory Information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
- **SARA (Superfund Amendments and Reauthorization):**

· **Section 355 (extremely hazardous substances):**

75-21-8 Ethylene oxide

· **Section 313 (Specific toxic chemical listings):**

75-21-8 Ethylene oxide

· **TSCA (Toxic Substances Control Act):**

124-38-9 Carbon Dioxide

75-21-8 Ethylene oxide

· **California Proposition 65:**· **Chemicals known to cause cancer:**

75-21-8 Ethylene oxide

· **Chemicals known to cause reproductive toxicity for females:**

75-21-8 Ethylene oxide

· **Chemicals known to cause reproductive toxicity for males:**

75-21-8 Ethylene oxide

· **Chemicals known to cause developmental toxicity:**

75-21-8 Ethylene oxide

· **Carcinogenic categories:**· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **TLV (Threshold Limit Value established by ACGIH):**

75-21-8 Ethylene oxide

A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health):**

75-21-8 Ethylene oxide

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**· **Signal word:** Danger· **Hazard-determining components of labeling:**

Ethylene oxide

· **Hazard statements:**

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

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Trade Name: Precision Calibration Gas Mixture

- H302 Harmful if swallowed.
- H331 Toxic if inhaled.
- H314 Causes severe skin burns and eye damage.
- H340 May cause genetic defects.
- H350 May cause cancer.
- H360 May damage fertility or the unborn child.
- H372 Causes damage to the nervous system through prolonged or repeated exposure.
- May displace oxygen and cause rapid suffocation.

Precautionary statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260 Do not breathe dusts or mists.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P311 Call a poison center/doctor.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- P314 Get medical advice/attention if you feel unwell.
- P363 Wash contaminated clothing before reuse.
- P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P381 Eliminate all ignition sources if safe to do so.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations:

None of the ingredients are listed.

Information about limitation of use:

- Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other Information**Relevant phrases:**

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- Date of last revision/ revision number:** 03/29/2020 / -

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Trade Name: Precision Calibration Gas Mixture

· **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety and Health
OSHA: Occupational Safety & Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Gas 1: Flammable gases – Category 1
Press. Gas: Gases under pressure – Compressed gas
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1B: Carcinogenicity – Category 1B
Repr. 1A: Reproductive toxicity – Category 1A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

· *** Data compared to the previous version altered.**

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