

1 Identification

- **Product identifier**
- **Trade name:** Virent BioForm® Synthesized Kerosene (SK) Jet fuel
- **Article number:** Virent SK
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture**
This material is only to be used for research and development, under the direct supervision of a technically qualified person. The toxicological properties have not been thoroughly investigated.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Virent, Inc.
3571 Anderson Street
Madison, WI USA 53704
- **Information department:** Product safety department: dave_runnels@virent.com
- **Emergency telephone number:**
For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident, Call CHEMTREC (Day or Night)
CHEMTREC: NORTH AMERICA: 800-424-9300
CHEMTREC: INTERNATIONAL: CALL 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
Mono and dicyclo paraffins (predominately C9-C16), hydrotreated

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 1)

· **Hazard statements**

- H226 Flammable liquid and vapor.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· **Precautionary statements**

- P210 Keep away from flames and hot surfaces. – No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P280 Wear protective gloves / eye protection / face protection.
- P280 Wear protective gloves.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 If swallowed: Immediately call a poison center/doctor.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a poison center/doctor if you feel unwell.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Hazards Not Otherwise Classified None**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 2)

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
Mono and dicyclo paraffins (predominately C9-C16),
hydrotreated

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult 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:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
- **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** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 3)

- **Further information about storage conditions:** None.
- **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 item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **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.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.

- **Penetration time of glove material**

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

- **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

Form:	Liquid
Color:	Colorless to yellow
Odor:	Petrol-like
Odour threshold:	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	>140 °C (>284 °F)

- **Flash point:** > 38 °C (> 100 °F)

- **Flammability (solid, gaseous):** Not applicable.

(Contd. on page 5)

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 4)

· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20 °C (68 °F):	0.78-0.83 g/cm ³ (6.509-6.926 lbs/gal)
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic at 20 °C (68 °F):	1-2 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 % Not tested
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Causes irritation of the skin.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 6)

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 5)

· **Additional toxicological information:**

· **Carcinogenic categories**

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

· **Toxicity**

· **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:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely 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:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN1863

· **UN proper shipping name**

· **DOT**

Fuel, aviation, turbine engine

· **ADR**

1863 Fuel, aviation, turbine engine

· **IMDG, IATA**

FUEL, AVIATION, TURBINE ENGINE

· **Transport hazard class(es)**

· **DOT, ADR**

· **Class**

3 Flammable liquids

(Contd. on page 7)

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 6)

· Packing group	
· DOT, ADR	III
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Flammable liquids
· 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: 60 L On cargo aircraft only: 220 L
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN1863, Fuel, aviation, turbine engine, 3, III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):
Substance is not listed.
· Section 313 (Specific toxic chemical listings):
Substance is not listed.
· TSCA (Toxic Substances Control Act):
Substance is not listed.
· Proposition 65
· Chemicals known to cause cancer:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for females:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for males:
Substance is not listed.
· Chemicals known to cause developmental toxicity:
Substance is not listed.
· Carcinogenicity categories
· EPA (Environmental Protection Agency)
Substance is not listed.
· TLV (Threshold Limit Value established by ACGIH)
Substance is not listed.

(Contd. on page 8)

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 7)

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

Substance is not listed.

· **GHS label elements**

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

· **Hazard pictograms**



GHS02 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Mono and dicyclo paraffins (predominately C9-C16), hydrotreated

· **Hazard statements**

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H304 May be fatal if swallowed and enters airways.

· **Precautionary statements**

P210 Keep away from flames and hot surfaces. – No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

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

P280 Wear protective gloves / eye protection / face protection.

P280 Wear protective gloves.

P240 Ground/bond container and receiving equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P264 Wash thoroughly after handling.

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

P301+P310 If swallowed: Immediately call a poison center/doctor.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P321 Specific treatment (see on this label).

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312 Call a poison center/doctor if you feel unwell.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P331 Do NOT induce vomiting.

P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.

P362+P364 Take off contaminated clothing and wash it before reuse.

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

(Contd. on page 9)

Printing date 05/18/2015

Reviewed on 05/18/2015

Trade name: Virent BioForm® Synthesized Kerosene (SK) Jet fuel

(Contd. of page 8)

· Date of preparation / last revision 05/18/2015 / -**· Abbreviations and acronyms:***ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**DOT: US Department of Transportation**IATA: International Air Transport Association**ACGIH: American Conference of Governmental Industrial Hygienists**CAS: Chemical Abstracts Service (division of the American Chemical Society)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**Flam. Liq. 3: Flammable liquids, Hazard Category 3**Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2**STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3**Asp. Tox. 1: Aspiration hazard, Hazard Category 1*

US