

SAFETY DATA SHEET	SDS N°004 (available on www.rofafrance.com)
	Number of page : 4
	Revision: 05
ROFA FRANCE	Date: 02 04 2018
JET A-1 (Kerosene)	Replace version dated: 2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

- 1.1. Product identifier: Product name JET A-1/ Other name F35 / Mixture
 1.2. Relevant identified uses of the substance or mixture and uses advised against. Identified uses Fuel for aircraft turbines.
 1.3. Details of the supplier of the safety data sheet: ROFA FRANCE - 7 Zone Artisanale Béton Ouest – 25160 Oye-Et-Pallet – France Tel +33 3 81 69 75 47
 1.4. Emergency telephone number Emergency phones: ORFILA / Tel : 01.45.42.59.59 / Carechem 24 International. For English speaking countries +44(0)1235239670 / Europe (in local languages) +33149000049 / Africa and Middle East +44(0)1235239671+China 861051003039

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture. REGULATION (EC) No 1272/2008 *For the full text of the H-Statements mentioned in this Section, see Section Classification: Flammable liquids - Category 3 // Aspiration toxicity - Category 1 // Skin corrosion/irritation - Category 2 // Specific target organ systemic toxicity (single exposure) - Category 3 // Chronic aquatic toxicity - Category 2 // DIRECTIVE 67/548/EEC or 1999/45/EC. For the full text of the R-phrases mentioned in this Section, see Section 16.*

Classification
 Inflammable Category 3, R10-Xn, R65-Xi, R38-N,R51-53

2.2. Label elements: Labelled according to: REGULATION (EC) No 1272/2008 EC-No 289-220-8



Hazard Statements	Precautionary statements
H226 - Flammable liquid and vapor H304 - May be fatal if swallowed and enters airways H315 - Causes skin irritation H336 - May cause drowsiness or dizziness H411 - Toxic to aquatic life with long lasting effects	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P243 - Take precaution measures against static discharge P262 - Do not get in eyes, on skin, or on clothing P283 - Wear fire/ flame resistant/retardant clothing 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 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P273 - Avoid release to the environment P314+P331 - Get medical advice/attention if you feel unwell / Do NOT induce vomiting P403+P235 - Store in a well-ventilated place. Keep cool

2.3. Other hazards

Physical-Chemical Properties flammable: Friction generated by product discharge can create static charges of sufficient magnitude to cause SPARKS WHICH MAY LEAD TO FIRE OR EXPLOSION.

Properties Affecting Health: Prolonged or repeated contact may cause skin irritation. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours).

Environmental properties: Toxic to aquatic organism, may cause long-term adverse effects in the aquatic environment. Should not be release in the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixture

Chemical nature: Kerosene (petroleum), hydro desulfurized. A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulphur to hydrogen sulphide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range C9-C16 and boiling in the range of approximately 150-290°C

Hazardous components						
Chemicals Name	EC-N°	Reach Registration Number	CAS-N°	Weight %	Classification (Dir.67/548)	GHS Classification
Kerosene (petroleum hydrosulfurised)	265-184-9	01-2119462828-25	64742-81-0	< 100	R10 Xn;R65 Xi;R38 N;R51/53	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aquatic Chronic 2 (H411)
Kerosene (petroleum sweetened)	294-799-5	01-2119502386-46	91770-15-9	< 100	R10 Xn;R65 Xi;R38 N;R51/53	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aquatic Chronic 2 (H411)
Kerosene (petroleum)	232-366-4	01-2119485517-27	8008-20-6	< 100	R10 Xn;R65 Xi;R38 N;R51/53	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aquatic Chronic 2 (H411)

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4. FIRST AID MEASURES

4.1 Description of first aid measures:

IN CASE OF SERIOUS OR PERSISTENT MANIFESTATIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

Inhalation: This risk exists only if the product is sprayed or heated to a high temperature. Transport the person out of the contaminated zone, keep warm and allow to rest. If there is any suspicion of inhalation of H₂S (hydrogen sulphide) rescuers must wear breathing apparatus. Obtain medical advice for further treatment.

Irritation of the respiratory system: narcosis.

Ingestion: Consult a doctor. Give nothing to drink. Do not induce vomiting to avoid the risk of aspiration into the respiratory tract. Allow the person to rest. Nausea, vomiting, abdominal pains. Take victim immediately to hospital.

Skin contact: Immediately remove all soiled or stained clothing. Wash immediately and abundantly with soap and water.

Skin: Irritation.

Eye contact: Wash immediately in copious amounts of water, keeping eyelids apart for at least 15 minutes and consult a specialist. Burning feeling and temporary redness.

Aspiration: If the product is believed to have entered the lungs (in case of vomiting, for example), take the person to hospital for immediate care.

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

Eye contact: May cause slight irritation..

Skin contact: May cause skin irritation and/or dermatitis.

Inhalation: Inhalation of vapours can cause headache, nausea, vomiting and an altered state of consciousness. May cause irritation of respiration.

Ingestion: Ingestion may cause gastrointestinal, nausea, vomiting and diarrhoea. May cause central nervous system depression. If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours).

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Note to physician: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash point: see heading 9 - "Physical and chemical properties"

5.1 Extinguishing media: - suitable: Foam, CO₂, powder, possibly water spray (preferably water containing a wetting agent).

- *not recommended:* Solid water streams are prohibited as they could help to spread the flames. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Specific fire-fighting methods: Cool down tanks and surfaces exposed to the fire by abundant spraying with water. Isolate the source of the combustible product; allow burning out under supervision or use appropriate fire extinguishers, as applicable.

5.2 Specific hazards: Incomplete combustion and thermolysis produce gases of varying toxicity such as CO, CO₂, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled. Special care must be taken to avoid the risk of explosion. When the temperature is close to the flash point, the vapour pressure is so high that it may create an explosive atmosphere above the stored product.

5.3 Protective measures for fire-fighters: In case of a large or confined or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Cool down any tanks and surfaces exposed to fire by spraying abundantly with water. Don't allow run-off from fire fighting to enter drains and water courses. If there is any suspicion of inhalation of H₂S (hydrogen sulphide) rescuers must wear breathing apparatus..

6. ACCIDENTAL RELEASE MEASURES

6.1 General precaution: No flames, no sparks, eliminate all source of ignition, don't smoke, use specific care to avoid static electrical charges, prevent any contact with hot surfaces.

6.1.1 For non-emergency personnel: do not attempt to take action without suitable protective equipment, gloves, safety glasses. Avoid contact with skin and eyes.

6.1.2 For emergency responders: do not attempt to take action without suitable protective equipment, breathing apparatus. Evacuate unnecessary personnel.

6.2 Environmental precautions: prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3 Methods and material for containment and cleaning up. If spilled may cause the floor to be slippery. Sweep up or vacuum up the product. Dispose of contaminated material at an authorised site. Notify authorities if product enters sewers or public waters.

7. HANDLING AND STORAGE

7.1 HANDLING: Prevention of user exposure: Operations involving the inspection, cleaning and maintenance of storage containers require the application of strict procedures and must be entrusted to qualified specialist personnel only. Handle in well-ventilated premises. DO NOT SMOKE. AVOID INHALING VAPOURS. AVOID CONTACT WITH THE SKIN AND MUCOUS MEMBRANES. NEVER ATTEMPT TO PRIME THE CONTAINER SIPHON BY SUCKING WITH THE MOUTH. Keep the product away from food and beverages. Prevent the formation of vapours, mist and aerosols. Wear safety boots and fully covering protective clothing GENERATING NO STATIC ELECTRICITY. Using fuel as diluents or solvent is forbidden. Never weld, drill, grind, cut or saw any empty container.

Prevention of fire and explosion: Arrange machinery and equipment so as to prevent the sheet of burning product from spreading (retention pits and basins, siphons in the water drainage system). Use explosion-proof material. Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings). Do not use compressed oxygen or air when transferring or pouring the products. OPERATE ONLY ON COLD AND DEGASSED RESERVOIRS IN VENTILATED PREMISES (TO AVOID RISK OF EXPLOSION).

Precautions: COMPLY WITH USE AS MENTIONED IN SECTION 1. Do not use mobile phones during handling. Do not eat or drink or smoke during use. Avoid breathing in vapours, fumes or fogs. WHILE MOVING THE PRODUCT: to prevent risks related to static electricity, ensure that the machinery, equipment and tanks are properly earthed, prohibit loading in the rain and ensure that the product is poured slowly, particularly at the beginning of the operation. Avoid extended and repeated contacts with the skin as these can cause skin ailments aggravated by small injuries or friction on soiled clothing. Avoid contact with strong oxidizers. Remove any soiled or splashed clothing immediately. After contact with skin, wash immediately with plenty of water and soap. Use only containers, joints, pipes, etc... made in a material suitable for use with aromatic hydrocarbons.

STORAGE:

Technical measures: Use anti-explosive materials conforming with the applicable regulations. Electric installations must comply with the applicable regulations. Prevent any build-up of static electricity. Installations should be designed to avoid pollution of soil and water. Don't withdraw the danger labels of the containers (even if they are empty).

7.2 Conditions for storage including any incompatibilities:

precautions: - **Suitable:** Store packaged product (drums, samples, cans...) in well-ventilated areas. STORE AT ROOM TEMPERATURE, away from water, moisture, heat, and any source of ignition. **To be avoided:** Do not store exposed to the elements.

Incompatible products: Dangerous reaction when in contact with strong oxidizers (herbicides etc...).

Packaging materials: - Recommended: Use only containers, joints, pipes etc.... made in material suitable for use with aromatic hydrocarbons.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

DNEL WORKER / Professional

Chemical name	Short term systemic effects	Short term local effects	Long-term systemic effects	Long-term local effect
Kerosene (petroleum hydrodesulfurised) 64742-81-0				

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Kerosene (petroleum sweetened) 91770-15-9				
Kerosene (petroleum) 8008-20-6				

DNEL Consumer

Chemical name	Short term systemic effects	Short term local effects	Long-term systemic effects	Long-term local effect
Kerosene (petroleum hydrodesulfurised) 64742-81-0			19 mg/kg/24h (oral)	
Kerosene (petroleum sweetened) 91770-15-9			19 mg/kg/24h (oral)	
Kerosene (petroleum) 8008-20-6			19 mg/kg/24h (oral)	

8.2 Technical measures: Use this product in a well-ventilated atmosphere with explosion-proof equipment. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Occupational exposure limit:

Exposure controls:

Engineering Exposure controls: Ensure adequate ventilation. Apply technical measures to comply with the occupational exposure limits. When working in confined spaces ensure that there is a supply of air suitable for breathing and wear the recommended equipment. Don't enter tanks until available oxygen has been checked.

Respiratory protection: In case of risk of exposure exceeding the mean exposure value, an appropriate breathing apparatus must be worn by each individual.

Hand protection: Hydrocarbon-proof gloves for aromatic hydrocarbons. In case of splashes or limited contact: Recommended material: Nitrile > 0,3 mm / > 60 minutes (EN 374-3). - In case of prolonged or repeated contact: Recommended materials: Fluoro polymer and PVA > 480 minutes (EN 374-3), all layer thickness; Nitrile 0,5 mm / > 480 minutes (EN 374-3). For more precise details about the choice of the appropriated glove, please contact the manufacturers of protective gloves.



Eye protection / Skin and body protection / Respiratory protection

Hygienic work practices: Avoid contact with the skin. If the product comes into contact with the skin, wash the affected area immediately and copiously with soap and water. In case of contact with eyes, wash immediately in copious amounts of water while keeping eyelids spread apart for at least 15 minutes and consult a specialist.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid at 20°C

Colour: Colourless to light yellow.

Odour: Characteristic

Density/specific gravity: 788 - 845 kg/m³ at Temperature 15 °C

Flash point: > 38 °C (NF M 07-019)

Temperature auto-ignition: > 230 °C (ASTM E 659)

Comments on auto-ignition temperature: This temperature may be significantly lower under particular conditions (slow oxidation on finely divided materials).

Comments on explosivity: Lower explosion limit 0,7% volume in air, Upper explosion limit 5,0% volume in air

Temperatures at phase change: Distillation range: ~160-300 °C

Congealing temperature: < -46 °C (ASTM D 2386)

Vapour density: > 1 (air=1)

Vapour pressure: < 8 hPa at Temperature 20°C

Solubility: - in water, practically immiscible Insoluble / in organic solvents, Soluble in many common solvents.

Viscosity: ~ 8,5 mm²/s at temperature -20°C

10. STABILITY AND REACTIVITY

10.1 Stability: The product is stable at normal storage, handling and use temperatures.

10.2 Conditions to avoid: Heat, sparks, ignition points, flames, static electricity.

10.3 Materials to avoid: Strong oxidising agents. Strong acids and bases, halogens

10.4 Hazardous decomposition products: None under normal use.

10.5 Reactivity: Flammable liquid and vapour.

11. TOXICOLOGICAL INFORMATION

Acute toxicity / Local effect: Inhalation, comments. The vapours inhaled or spray may be irritating for the respiratory tract and for mucous membranes. Vapours inhaled in strong concentration have a narcotic effect on the central nervous system, which may be light headache, dizziness, somnolence or serious fainting, in which case first aid is required rapidly.

Skin contact, comments: Irritating.

Eye contact, comments: Not classified as irritating, but may cause a burning feeling and temporary reddening.

Ingestion, comments: Harmful: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).

CHRONIC TOXICITY OR LONG-TERM TOXICITY:

Inhalation: Vapour and spray may be irritating for the respiratory tract and for mucous membranes

Sensitization: Not classified as allergenic.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Accute aquatic toxicity component information

Chemical name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Kerosene (petroleum hydrodesulfurised) 64742-81-0	EL50 (72 h) 1-3 mg/l (Pseudokirchnerella subcapitea – OECD 201)	EL50 (48 h) 1-4 mg/l (Daphana magna – OECD 202)	EL50 (96 h) 2-5 mg/l (Oncorhynchus mykiss– OECD 203)	
Kerosene (petroleum sweetened)	EL50 (72 h) 1-3 mg/l (Pseudokirchnerella subcapitea – OECD 201)	EL50 (48 h) 1-4 mg/l (Daphana magna – OECD 202)	EL50 (96 h) 2-5 mg/l (Oncorhynchus mykiss– OECD 203)	

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91770-15-9	OECD 201)		203)
Kerosene (petroleum) 8008-20-6	EL50 (72 h) 1-3 mg/l (Pseudokirchnerella subcapitea – OECD 201)	EL50 (48 h) 1-4 mg/l (Daphana magna – OECD 202)	EL50 (96 h) 2-5 mg/l (Oncorhynchus mykiss– OECD 203)

Chronic aquatic toxicity component information

Chemical name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Kerosene (petroleum hydrodesulfurised) 64742-81-0		NOEL (21d) 0.89 mg/l (Daphana magna – OECD 211)	NOEL (14/28d) 0.098 mg/l (Oncorhynchus mykiss – QSAR Petrotox)	
Kerosene (petroleum sweetened) 91770-15-9		NOEL (21d) 0.89 mg/l (Daphana magna – OECD 211)	NOEL (14/28d) 0.098 mg/l (Oncorhynchus mykiss – QSAR Petrotox)	
Kerosene (petroleum) 8008-20-6		NOEL (21d) 0.89 mg/l (Daphana magna – OECD 211)	NOEL (14/28d) 0.098 mg/l (Oncorhynchus mykiss – QSAR Petrotox)	

12.2 Persistence and Degradability: Substance is a UVCB Standard tests for this endpoint are not appropriate.

12.3 Bio accumulative potential: Substance is a UVCB Standard tests for this endpoint are not appropriate. - LogPow: not applicable.

12.4 Mobility in soil.

Method	Compartment	Result	(%)	Remarks
Percentage distribution in media (Calculation according to Mackay Level III)	Soil		0.34	
	Sediment		0.81	
	Water		5.83	
	Air		93.02	

13. DISPOSAL CONSIDERATIONS

Waste disposal: The recommended method is recycling or incineration in an approved installation

Disposal of contaminated packaging: Empty packaging may contain flammable or explosive vapours. Hand over to an authorised waste contractor.






National regulations: Storage of liquid hydrocarbons : decree of 09.11.1972 (Journal Officiel of 31.12.1972); decree of 19.11.1975 (JO of 23.01.1976); circular of 04.12.1975 (JO of 23.01.1976). When cleaning tanks, the disposal of sludge is to be carried out in compliance with regulations concerning waste : law N° 75-633 of 15.07.1975 (JO of 16.07.1975), amended

law N° 76-663 of 19.07.1976 (regulated facilities). Decree N° 77-974 of 19.08.1977 (JO of 28.08.1977). Decree of 01.03.1993 concerning waste (JO of 28.03.1993)

Waste classification: Decree 2002-540 of April 18, 2002.

1. TRANSPORT INFORMATION

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN Number				
1223	1223	1223	1223	1223
14.2. UN proper shipping name				
KEROSENE	KEROSENE	Kerosene	KEROSENE	KEROSENE
Transport document description				
UN 1223 KEROSENE, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1223 Kerosene, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing Group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine Pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes

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15. REGULATORY INFORMATION

European Union: This substance has been registered according to Regulation (EC) N° 1907/2006 (REACH)

International Inventories: EINECS/ELINCS – Complies / TSCA - Complies / DSL Complies / ENCS - complies / IECSC - complies / KECL Complies / PICCS complies / AICS complies / NZiOC Complies.

16. OTHER INFORMATION

Explanations of R :

R10 Flammable. / R38 Irritating to skin / R65 Harmful: may be lung damage is swallowed / R51-R53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Explanations of H :

H226 - Flammable liquid and vapor / H304 - May be fatal if swallowed and enters airways / H315 - Causes skin irritation / H336 - May cause drowsiness or dizziness / H411 - Toxic to aquatic life with long lasting effects

This safety sheet complies with the requirements of Regulation (EC) N° 1907/2006 and it's amended Regulation (EU) 2015/830

It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the products to pass to any subsequent persons who will come into contact with the product.