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Safety Data Sheet Date of Issue/Date of Revision

21-July-2023

Date of Previous Issue

16-March-2020 (Rev. No. 01/Ver.0)

SDS – ARKTM Fentanyl II Assay

Meets the requirements of Regulation (EC) No. 1907/2006 (REACH), Annex II, with changes introduced by Commission Regulation (EU) 2020/878

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

1.1. Product Identifier: ARKTM Fentanyl II Assay

Product Number: 5069-0001-00, 5069-0001-01, 5069-0001-02

(a) Other means of identification/synonyms

Antibody/Substrate Reagent 1 4069-0001-01, 4069-0001-04, 4069-0001-07

Enzyme Reagent 2 4069-0002-01, 4069-0002-04, 4069-0002-07

Product Type: Liquid Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Invitro Diagnostic Kit Reagents for Professional users only

1.3. Details of the supplier of the safety data sheet

Company ARK Diagnostics, Inc.

48089 Fremont Blvd. Fremont, CA 94538

USA

Telephone 1-510-270-6270 Fax 1-510-270-6298

Email: <u>customersupport@ark-tdm.com</u>

1.4 Emergency Telephone 800-424-9300 CHEMTREC (USA)

+1-703-527-3887 CHEMTREC (International)

24 Hours/day; 7 Days/week

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

This product is a reagent kit consisting of individual ingredients. The classification of material is not considered hazardous by the EC Regulation 1272/2008 and OSHA Hazard Communication (29CFR 1910.1200)



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2.2. OSHA/HCS Status:

Regulation (EC)

1272/2008 [GHS] ARKTM Fentanyl II Assay

This material is not considered hazardous by the OSHA Hazard

Communication Standard (29 CFR 1910.1200).

GHS Label Elements:

Signal word: ARKTM Fentanyl II Assay No signal word.

Hazard statements: ARKTM Fentanyl II Assay No known significant effects or critical hazards.

Precautionary statements

Prevention: ARK^{TM} Fentanyl II AssayNot applicable.Response: ARK^{TM} Fentanyl II AssayNot applicable.Storage: ARK^{TM} Fentanyl II AssayNot applicable.Disposal: ARK^{TM} Fentanyl II AssayNot applicable.

Supplemental label

elements: ARKTM Fentanyl II Assay Not applicable.

Hazards not otherwise

classified: ARKTM Fentanyl II Assay Not applicable.

3. COMPOSITIONS/INFORMATION ON INGREDIENTS

Antibody/Substrate Reagent 1

GHS Classification

The GHS classification of the mixture has not been determined. Not a hazardous mixture based on bridging principles of GHS classification (2005) of individual components and ingredients and regulation EC No 1272/2008

Components

Chemical name	CAS no.	Concentration (%w/w)	Classification
	EC No		
Nicotinamide adenine	20111-18-6	>0.1 to <5	Not a hazardous
dinucleotide,	683-623-6		substance
monosodium			
dihydrate			
Glucose 6 phosphate	3671-99-6	>0.1 to <5	Not a hazardous



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disodium hydrate	222-938-1		substance
Albumins, Blood Serum	9048-46-8 232-936-2	>0.1 to <5	Not a hazardous substance

Any concentration shown as a range is to protect confidentiality or is due to batch variation. Concentrations below 0.1%w/w for other ingredients are excluded per EC 1907/2006 and amended Annex II 2020/878. Occupational Exposure limits are listed in Section 8

Enzyme Reagent 2 GHS Classification

Not a hazardous substance or mixture

Components

Chemical name	CAS no.	Concentration (%w/w)	Classification
	EC No		
TRIZMA Base	7365-45-9	>0.1 to <5	Not a hazardous
	230-907-9		substance
TRIZMA Hydrochloride	75277-39-3		Not a hazardous
	278-169-7		substance
Albumins, Blood Serum	9048-046-8	>0.1 to >5	Not a hazardous
	232-936-2		substance

Any concentration shown as a range is to protect confidentiality or is due to batch variation. Concentrations below 0.1%w/w for other ingredients are excluded per EC 1907/2006 and amended Annex II 2020/878. Occupational Exposure limits are listed in Section 8.

4. FIRST AID MEASURES

4.1. Description of necessary first aid measures

Eye contact: If easy to do, remove contact lenses, if worn. Immediately flush eyes with

copious amounts of water for at least 15 minutes. If irritation occurs or persists,

notify medical personnel and supervisor.

Skin contact: Wash exposed area with soap and water and remove contaminated

clothing/shoes. If irritation occurs or persists, notify medical personnel and

supervisor.



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Inhalation: Immediately move exposed subject to fresh air. If not breathing, give artificial

respiration. If breathing is labored, administer oxygen. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed

person may need to be kept under medical surveillance for 48 hours. Immediately notify medical personnel and supervisor.

Ingestion: If swallowed, call a physician immediately. Do not induce vomiting unless

directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person.

Notify medical personnel and supervisor.

Protection of first aid The first aid procedure should be established in consultation with medical

personnel responsible for industrial medicine. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to perform mouth to mouth resuscitation. Wash contaminated clothing thoroughly with

water before removing it, or wear gloves.

Responders: See Section 8 for Exposure Controls/Personal Protection Recommendations.

4.2. Most important symptoms and effects both acute and delayed: See also sections 2 and 11.

Indication of immediate medical attention and special treatment needed if

necessary: Medical conditions aggravated by exposure: None known or reported. Treat

symptomatically and supportively.

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects

may be delayed following exposure.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Overexposure signs/symptoms

Eye Contact No specific data.



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Inhalation: No specific data.

Skin contact: No specific data.

Ingestion: No specific data.

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

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately

if large quantities have been ingested.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable

training. The first aid procedure should be established in consultation

with physician responsible for industrial medicine

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: In case of fire, use water spray (fog), foam, carbon

dioxide or dry chemical as appropriate for surrounding

fire and materials.

Unsuitable extinguishing media: None known

5.2. Special hazards arising from the substance or mixture

Hazards from the substance or mixture

In a fire or if heated a pressure increase

could occur resulting in the container to burst

Hazardous thermal decomposition products:

No specific data.

5.3. Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire fighters: Fire-fighters should wear appropriate protective



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equipment and self-contained breathing apparatus (SCBA) with a full face-piece

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency

personnel: No action shall be taken involving any personal risk or without suitable

training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of

any in Section 8 on suitable and unsuitable materials. See also the

information in "For non-emergency personnel".

6.2. Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil,

waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or

air).

6.3. Methods and materials for containment and cleanup

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with

water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Prevent entry

into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency

contact information and Section 13 for waste disposal.

6.4. Reference to other section(s)

See section 1 for emergency contact information

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information and disposal



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7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational

hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2. Conditions for safe storage including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3. Specific End Uses Laboratory Reagents for Clinical Chemistry Analyzers

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control Parameters

Antibody substrate Reagent 1 Contains no substances with occupational exposure limit values.

Enzyme Reagent 2

Contains no substances with occupational exposure limit values.

8.2. Exposure Controls

Appropriate engineering

Controls Good general ventilation should be sufficient to control worker exposure

to airborne contaminants.



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Personal protective equipment The selected protective equipment have to satisfy the specifications of

Regulations EU 2016/425 and the standard EN 374 derived from it.

Hand Wear appropriate protective gloves to prevent skin contact.

Replace torn or punctured gloves promptly. Please observe the

instructions regarding the permeability and breakthrough time provided

by the supplier of gloves.

Eye Wear Safety Glasses complying with approved standards commensurate

with risk assessment indicating possibility of liquid splashes.

Skin and Body Appropriate clothing preferably a lab coat as protective suit. Personal

protective equipment for the body should be selected based on the task being performed and the risks involved in handling the product. Appropriate footwear and any additional skin protection should be

selected during the performance of the tasks.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

Wash hands, forearms and face thoroughly after handling chemical products before eating and using the lavatory/toilet at the end of the working period. Wash contaminated clothing before reusing. Ensure eyewash stations and safety showers are in the vicinity and functional.

Respiratory Protection Based on the hazard and potential for exposure, select a respirator that

meets the appropriate standard or certification. Ensure proper training and fitting before use. No personal respiratory protective equipment is

normally required during the handling of this product.

Environmental exposure

controls: Emissions from ventilation or work process equipment should be

checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or

engineering modifications to the process equipment will be necessary to

reduce emissions to acceptable levels.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Antibody/Substrate Reagent R1

Appearance: Clear Liquid



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Color Colorless

Odor Odorless

Odor threshold Not relevant due to nature of product information identified

pH 5.0 to 8.0

Melting point/freezing point Not relevant due to nature of product Initial boiling point and

boiling range Does not Flash Not relevant due to nature of product Flash point

Evaporation rate No data avialable

Flammability (liquids) Does not sustain Combustion

Upper/lower flammability or

explosive limits No information identified
Vapor pressure No information identified
Vapor density No information identified
Relative density No information identified

Water solubility Miscible in water

Solvent solubility No information identified

Partition Coefficient

(n-octanol/water) No information identified

Auto-Ignition temperature No information identified

Decomposition temperature No information identified

Viscosity No data available

Explosive properties Not Explosive

Oxidizing properties The substance or mixture is not classified as oxidizing

Enzyme Reagent R2

Appearance: Clear Liquid
Color Colorless
Odor Odorless



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Odor threshold Not relevant due to nature of product information identified

pH 7.0 to 8.0

Melting point/freezing point Not relevant due to nature of product

Initial boiling point and boiling range Not relevant due to nature of product

Flash point Does not Flash

Evaporation rate No data available

Flammability (liquids) Does not sustain Combustion

Upper/lower flammability or

explosive limits No information identified

Vapor pressure No information identified

Vapor density No information identified

Relative density No information identified

Water solubility Miscible in water

Solvent solubility No information identified

Partition Coefficient

(n-octanol/water) No information identified
Auto-Ignition temperature No information identified

Decomposition temperature No information identified

Viscosity No data available

Explosive properties Not Explosive

Oxidizing properties The substance or mixture is not classified as oxidizing

9.2. Other information

Molecular weight Not Applicable, Homogeneous Mixture
Molecular formula Not Applicable Homogeneous Mixture

Particle Characteristics Particle size not applicable

Burning Time Not relevant due to nature of product



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Burning Rate Not relevant due to nature of product Heat of reaction Not relevant due to nature of product Heat of combustion Not relevant due to nature of product Flow time (ISO 2431) Not relevant due to nature of product

10. STABILITY AND REACTIVITY

10.1. Reactivity No specific test data related to reactivity available for this product or its

ingredients. No dangerous reaction known under conditions of normal use.

10.2. The product is stable when stored as recommended. **Chemical Stability**

10.3 Possibility of hazardous reactions Not expected to occur

10.4 Conditions to avoid No thermal hazard.

Avoid temperatures ≥32°C to preserve biochemical integrity.

No information identified. 10.5 **Incompatible materials:**

Hazardous decomposition products No information identified. 10.6

11. TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes

Not classified based on available information Acute Toxicity

Irritation/Skin Corrosion Not classified based on available information

Serious Eye damage/Injury Not classified based on available information

Sensitization Not classified based on available information

Mutagenicity Not classified based on available information

Not classified based on available information Carcinogenicity



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IARC No ingredient of this product present at levels greater than or equal to 0.1% w/w

is identified as probable, possible or confirmed human carcinogen

OSHA No component of this product present at levels greater than or equal to 1% w/w

is on OSHA's list of regulated carcinogens

NTP No ingredient of this product present at levels greater than or equal to 0.1% w/w

is identified as a known or potential carcinogen.

Conclusion Summary:

Reproductive Toxicity Not available

Teratogenicity Not available

Conclusion Summary:

Specific target organ toxicity (STOT) (single exposure) Not available

Specific target organ toxicity (multiple exposure)

Not available

Aspiration hazard Not available.

Potential acute health effects:

Eye contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.



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Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects Not available
Potential delayed effects Not available

Long term exposure

Potential immediate effects Not available
Potential delayed effects Not available
Potential chronic health effects Not available

Conclusion/Summary

General No known significant effects or critical hazards
Carcinogenicity No known significant effects or critical hazards
Mutagenicity No known significant effects or critical hazards
Teratogenicity No known significant effects or critical hazards
Developmental effects No known significant effects or critical hazards
Fertility effects No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity measurement Not available.

11.2. Information on other hazards

Endocrine disrupting properties Not available

To the best of our knowledge, the chemical, physical and toxicological properties of the mixtures have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1. Toxicity No data available for R1 and R2 mixture



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TRIZMA/TRIS

Toxicity to daphnia and other aquatic invertebrates

48h

Static test EC50- Dapnia magna (water flea) >100mg/L

(OECD Test Guideline 202)

Toxicity to algae

Static test NOEC – Pseudokirchneriella subcapitata (green algae) > 100mg/L 72h (OECD Test Guideline 201)

Remarks – refers to pure substance not mixture

12.2. Persistence and degradability

Biodegradability Aerobic exposure 28d Results 0% Not

readily biodegradable (OECD Test Guideline 301D)

Remarks: Refers to pure substance data not available for mixture.

12.3. Bio accumulative potential

Data not available

12.4. Mobility in soil

Soil/water partition coefficient (K_{oc})

12.5. Results of PBT a vPvB assessment

PBT/vPvB assessment not available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residue. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.



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14. TRANSPORT INFORMATION

Transport Based on available data, this product/mixture is not regulated as a hazardous

material/dangerous good under EU ADR/RID US DOT, Canada TDG, IATA or IMDG.

14.1. UN Number None assigned.

14.2. UN Proper Shipping Name

None assigned, not regulated as a dangerous good

14.3. Transport hazard classes and packaging group

None assigned, not regulated as a dangerous good

UNRTDG, IATA DGR, IMDG-Code Not regulated as a dangerous good

14.4. Packing Group No packing group assigned

14.5. Environmental Hazards Not determined for mixture

14.6. Special precautions for users Mixture not fully tested – avoid exposure.

14.7. Maritime transport in bulk Not applicable

14.8. Transport in bulk according to Annex II

of MARPOL 73/78 and the IBC code Not applicable

14.9. Domestic regulation

49 CFR Not assigned, Not regulated as a dangerous good

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance and mixture

This SDS complies with the requirements under the US, EU and GHS (EU CLP – Regulation EC No 1272/2008) guidelines. Consult your local or regional authorities for more information.

REACH – Candidate List of Substances of very High Concern for Authorization (Article 59) – Not Applicable

REACH – List of Substances subject to Authorization (Annex XIV) - Not Applicable

REACH – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)

-Not Applicable

Regulation EC No 1005/2009 on substances that deplete the ozone layer

-Not Applicable



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Regulation EC No 850/2004 on persistent organic pollutants

-Not Applicable

Regulation(EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

-Not Applicable

U.S. Federal regulations TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory TSCA 8(b) Not determined

Clean Air Act Section 112: Not listed

Hazardous Air pollutants (HAPs)

Clean Air Act

Class I and II Substances This product neither contains nor was manufactured with a Class I or Class II ODS as defined by the US Clean Air Act Section 602 (40 CFR 82)

This product does not contain any hazardous air pollutants (HAP) as identified by the US clean Air Act Section 112 (40 CFR 11).

This product does not contain any chemicals listed under the US Clean Air Act Section 112® for Accidental Release Prevention (40 CFR 68)

This product does not contain any chemicals listed under the US Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60).

Clean Water Act

This product does not contain any Hazardous Substances listed under the US Clean Water Act Section 311 This product does not contain any toxic pollutants listed under US Clean Water Act Section 307 This product does not contain any priority pollutants related to the US Clean Water Act

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified application.

DEA List I Chemicals

Precursor Chemicals

Not listed

Not listed

DEA List II Chemicals

Essential Chemicals Not listed

SARA 302/304

Composition/information on ingredients No products were found.



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SARA 304RQ: Not applicable.

SARA 311/312

Classification: Not applicable

Composition/information on ingredients: No products were found.

US State regulations

Massachusetts None of the components are listed
New York New Jersey Pennsylvania California None of the components are listed.

Canada inventory: The substances are listed in the DSL and do not meet the criteria of CEPA

European Inventory: On the C&L inventory of ECHA

International regulations

International lists: Australia inventory (AIIC): Not determined

Brazil: Not determined
China inventory (IECSC): Not determined
Japan inventory: Not determined
Korea inventory: Not determined
Malaysia inventory (EHS Register): Not determined

New Zealand Inventory of Chemicals (NZloC): Not determined

Philippines inventory (PICCS): Not determined Taiwan inventory (CSNN): Not determined

16. OTHER INFORMATION

Revision #, Date of Effectivity: See Header of this document

Key to Abbreviations:

AIIC = Australian Inventory of Chemicals

ACGIH=American Conference of Governmental Industrial Hygienists

ADR/RID=European Agreement Concerning the International Carriage of Dangerous goods by Road/Rail;

AIHA=American Industrial Hygiene Association



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ATE=Acute Toxicity Estimate

BCF=Bioconcentration Factor

CAS=Chemical Abstract Services

CEPA = Canadian Environmental Agency

CLP=Classification, Labelling and Packaging of Substances and Mixtures

DNEL=Derived No Effect Level

DSL = Domestic Substances List

EINECS=European Inventory of New and Existing Chemical Substances

EU=European Union

GHS=Global Harmonized System of Classification and Labelling of Chemicals

IARC=International Agency for Research on Cancer

IATA=International Air Transport Association

IBC=Intermediate Bulk Container

IDLH=Immediately Dangerous to Life or Health

IMDG=International Maritime Dangerous Goods

LOEL=Lowest Observed Effect Level

LOAEL=Lowest Observed Adverse Effect Level

LogPow=logarithm of the octanol/water partition coefficient

MARPOL 73/78=International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978. (Marpol=marine pollution)

NIOSH=National Institute of Occupational Health and Safety

NOEL=No Observed Effect Level

NOAEL=No Observed Adverse Effect Level

NTP=National Toxicology Program

OEL=Occupational Exposure Limit

OSHA=Occupational Safety and Health Administration

PNEC=Predicted No Effect Concentration

SARA=Superfund Amendments and Reauthorization Act

STEL=Short Term Exposure Limit

TDG=Transportation of Dangerous Goods

TSCA=Toxic Substances Control Act

TWA=Time Weighted Average

UN= United Nations

WHMIS=Workplace Hazardous Materials Information System

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Doc. No. 0900-0011-32

Rev No. 02

Safety Data Sheet

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SDS – ARKTM Fentanyl II Assay

Meets the requirements of Regulation (EC) No. 1907/2006 (REACH), Annex II, with changes introduced by Commission Regulation (EU) 2020/878

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.