Safety Data Sheet (SDS)

Revision Number: 1.2	*Last updated: April 2015*

1. Product and Company Identification

Product Name:	**SensoLyte® 520 HIV Protease Assay Kit * Fluorimetric***
Manufacturer/Supplier:	AnaSpec, Inc. www.anaspec.com 34801 Campus Drive Fremont, CA 94555 Tel: 510-791-9560 Fax: 510-791-9572 Email: service@anaspec.com
Catalog Number	AS-71147
Unit Size	1 kit

2. Hazards Identification

Emergency Overview:

GHS Hazard Classification:

GHS Physical Hazards

Component A, B, F: Flammable liquid (Category 4)
Component C: Acute toxicity, Oral (Category 5)
Component D: Not Applicable
Component E: Acute toxicity, Oral (Category 4)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)
Component G: Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Health and Environmental Hazards

Component A, B, F: Irritant to eyes and skin
Component C: N/A
Component D: Skin irritant
Component E: Target organ effect, harmful by ingestion, toxic by skin absorption, irritant
Component G: Target organ effect, toxic by ingestion, irritant

GHS Signal Words:

Component A, B, C, D, F, G: Warning
Component E: Danger

GHS Hazard Statements:

Component A, B, F: H227 Combustible liquid
Component C: H303 May be harmful if swallowed
Component D: H303 May be harmful if swallowed.
H319 Causes serious eye irritation.
H402 Harmful to aquatic life
Component E: H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H401 Toxic to aquatic life.
Component G: H303 May be harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

GHS Precautionary Statements:

Component A, B, C, F: None
Component D: P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water.
Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P501 Dispose of contents/container to an approved waste disposal plant.
Component E: P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
Component G: P305 + P351 + P338 IF IN EYES: Rinse cautiously with water.
Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification:

Component A:	**Component B:**	**Component C:**	**Component D:**	**Component E:**	**Component F:**	**Component G:**
Health hazard: 0	*Health hazard:* 0	*Health hazard: 1*	*Health hazard 2*	*Health hazard: 2*	*Health hazard:* 0	*Health hazard: 2*
Flammability: 2	*Flammability:* 2	*Flammability: 0*	*Flammability: 0*	*Flammability: 3*	*Flammability:* 2	*Flammability: 0*
Physical hazards: 0	*Physical hazards:* 0	*Physical hazards: 0*	*Physical hazards: 0*	*Physical hazards:* 3	*Physical hazards:* 0	*Physical hazards:* 0

NFPA Rating:

Component A:	**Component B:**	**Component C:**	**Component D:**	**Component E:**	**Component F:**	**Component G:**
Health hazard: 0	*Health hazard:* 0	*Health hazard: 0*	*Health hazard 2*	*Health hazard: 2*	*Health hazard:* 0	*Health hazard: 2*
Fire: 2	*Flammability:* 2	*Flammability: 0*	*Flammability 0*	*Flammability: 3*	*Flammability:* 2	*Flammability: 0*
Reactivity hazard: 0	*Physical hazards:* 0	*Physical hazards: 0*	*Physical hazards 0*	*Physical hazards:* 3	*Physical hazards:* 0	*Physical hazards:* 0

3. Composition / Information on Ingredients

Ingredients/Components:

Chemical Name:	*Description*	*CAS Number:*
Component A	Contains DMSO	67-68-5
Component B	Contains DMSO	67-68-5
Component C	Pepstatin A	26305-03-3
Component D	Proprietary	NA
Component E	Proprietary	NA
Component F	Contains DMSO	67-68-5
Component G	Contains DTT	3483-12-3

4. First Aid Measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Component A

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Consult a physician.
Eyes: Flush eyes with water as a precaution.

Component B

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Consult a physician.
Eyes: Flush eyes with water as a precaution.

Component C

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Consult a physician.
Eyes: Flush eyes with water as a precaution.

Component D

Inhalation: If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.
Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Consult a physician.
Eyes: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Component E

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
Eyes: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Component F

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Skin: Wash off with soap and plenty of water. Consult a physician.

Eyes: Flush eyes with water as a precaution. **Component G** *Inhalation:* If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician. *Ingestion:* Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. *Skin:* Wash off with soap and plenty of water. Consult a physician. *Eyes:* Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

5. Fire Fighting Measures

Extinguishing media:	**Component A and B:** For small fires, use alcohol resistant foam, dry chemical, or carbon dioxide. For large fires, use water spray from a safe distance. **Component C:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. **Component D and E:** Not Applicable **Component F:** For small fires, use alcohol resistant foam, dry chemical, or carbon dioxide. For large fires, use water spray from a safe distance. **Component G:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special firefighting procedures:	**Component A and B:** Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. **Component C:** Wear self contained breathing apparatus for fire fighting if necessary. **Component D and E:** Not Applicable **Component F:** Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. **Component G:** Wear self-contained breathing apparatus for fire fighting if necessary.
Unusual fire and explosions hazards:	**Component A and B:** Combustible liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous carbon oxides and sulphur oxides formed under fire conditions. **Component C:** Hazardous carbon oxides and nitrous oxides formed under fire conditions. **Component D and E:** Not Applicable **Component F:** Combustible liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous carbon oxides and sulphur oxides formed under fire conditions. **Component G:** Hazardous carbon oxide and sulphur oxide products are formed under fire conditions.

6. Accidental Release Measures

Containment and spill response	**Component A and B:** Immediately contact emergency personnel. Prevent further leakage or spillage if safe to do so. Avoid breathing vapors or mist. Remove all sources of ignition and provide ventilation. Collect with an electrically protected vacuum cleaner, by wet-brushing, or by absorbing with vermiculite, sand or earth, and place in appropriate container for disposal. Do not let material enter drains. **Component C:** Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

	Component D: Use appropriate equipment to place in appropriate waste disposal container. Spread water on contaminated surface and dispose of according to local and regional requirements. **Component E:** Contain spillage and collect with an electrically protected vacuum cleaner or wet brush. Keep in suitable, closed container for disposal. **Component F:** Immediately contact emergency personnel. Prevent further leakage or spillage if safe to do so. Avoid breathing vapors or mist. Remove all sources of ignition and provide ventilation. Collect with an electrically protected vacuum cleaner, by wet-brushing, or by absorbing with vermiculite, sand or earth, and place in appropriate container for disposal. Do not let material enter drains. **Component G:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Do not let product enter drains.
PPE	Use personal protective equipment

7 . Handling and Storage

Component A and B
Handling: Wash thoroughly after handling. Remove and wash any contaminated clothing. Keep container tightly closed and avoid contact with eyes, skin, and clothing. Use with adequate ventilation and avoid ingestion and inhalation. Keep away from heat and flame.
Storage: Store in a tightly closed container away from moisture, heat, and flame. Store away from incompatible substances. Storage under a nitrogen blanket has been recommended.
Component C
Handling: Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
Storage: Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: 2 - 8 °C
Component D
Handling: Do not ingest or inhale.
Storage: Store in a tightly closed container in a cool, well-ventilated area. Keep away from sources of ignition. Keep away from incompatible materials such as oxidizers and metals.
Component E:
Handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Take measures to prevent the build up of electrostatic charge.
Storage: Store in a tightly closed container in a dry, well-ventilated area.
Component F
Handling: Wash thoroughly after handling. Remove and wash any contaminated clothing. Keep container tightly closed and avoid contact with eyes, skin, and clothing. Use with adequate ventilation and avoid ingestion and inhalation. Keep away from heat and flame.
Storage: Store in a tightly closed container away from moisture, heat, and flame. Store away from incompatible substances. Storage under a nitrogen blanket has been recommended.
Component G:
Handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
Storage: Store in a tightly closed container in a cool, well-ventilated area. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Controls / Personal Protection

Engineering controls	**Component A and B:** Facilities storing and using this material should be equipped with a safety shower and eyewash station. Adequate ventilation should also be present. **Component C:** Contains no substances with occupational exposure limit values.

	Component D: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. **Component E:** Not Applicable **Component F:** Facilities storing and using this material should be equipped with a safety shower and eyewash station. Adequate ventilation should also be present. **Component G:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
PPE	**Component A and B** *Respiratory System:* A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves. *Eyes:* Wear chemical splash goggles. **Component C** *Respiratory System:* Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves. *Eyes:* Wear chemical splash goggles. **Component D** *Respiratory System:* Respiratory protection not required. *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves. *Eyes:* Handle with safety glasses. **Component E** *Respiratory System:* If necessary, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves. Wash and dry hands. *Eyes:* Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). **Component F** *Respiratory System:* A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves.

	Eyes: Wear chemical splash goggles. **Component G** *Respiratory System:* If necessary, use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). *Skin and Body:* Wear appropriate work uniform or laboratory coat to prevent skin exposure. *Hands:* Use chemical resistant, impervious gloves. Appropriate techniques should be used to remove potentially contaminated gloves. Wash and dry hands. *Eyes:* Use safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

9. Physical and Chemical Properties

Physical State	Liquid
Odo	Not determined
Solubility in Water	Soluble
Specific Gravity	Not determined
pH	Component D – 4.7
Boiling Point	Not determined
Melting Point	Not determined
Flash Point	Not determined
Vapor Pressure:	Not determined
Vapor Density:	Not determined

10.Stability and Reactivity

Thermal Decomposition	Not applicable
Dangerous Products of Decomposition	**Component A, B, and F:** Hazardous carbon oxides and sulphur oxides formed under fire conditions. **Component C:** Hazardous carbon oxides and nitrous oxides formed under fire conditions. **Component D:** Not Applicable **Component G:** Hazardous carbon oxide and sulphur oxide products are formed under fire conditions.
Dangerous Reactions	Not Applicable

11.Toxicological Information

RTECS Number	**Component A, B, F:** PV6210000 **Component C:** SC6155000 **Component D:** NA **Component E:** Proprietary **Component G:** EK1610000
Toxicity	***Component A, Component B, and Component F contain DMSO.*** **For DMSO** Oral LD50 LD50 Oral - rat - 14,500 mg/kg Inhalation LC50 LC50 Inhalation - rat - 4 h - 40250 ppm

	Dermal LD50 LD50 Dermal - rabbit - >5,000 mg/kg **Component C** Oral LD50 LD50 Oral - rat - > 2,000 mg/kg **Component D** Not available **Component E** LD50 Oral – rat - 1,288 mg/kg LC50 Inhalation – rat – 1 h - >3,900 mg/m3 LD50 Dermal – rabbit - 580 mg/kg **Component G** Not available
Health Hazards	No data available
Potential Hazards	**Potential Health Effects** **Component C** *Inhalation:* May be harmful if inhaled. May cause respiratory tract irritation. *Skin:* May be harmful if absorbed through skin. May cause skin irritation. *Eyes:* May cause eye irritation. *Ingestion:* May be harmful if swallowed. *Target Organs:* None known **Component D** Not Applicable **Component E** *Inhalation***:** May be harmful if inhaled. Causes respiratory tract irritation. *Ingestion* **:** Harmful if swallowed. *Skin:* Toxic if absorbed through skin. Causes skin irritation. *Eyes:* Causes eye irritation. **Component G** *Inhalation:* May be harmful if inhaled. Causes respiratory tract irritation. *Ingestion:* Toxic if swallowed. *Skin:* May be harmful if absorbed through skin. Causes skin irritation. *Eyes:* Causes eye irritation.
Carcinogenicity:	No data available
OSHA Permissible Exposure Limit(PEL) Data	No data available
ACGIH Threshold Limit Values (TLV)	No data available

12. Ecological Information

For Dimethyl sulfoxide (DMSO) CAS-No. 67-68-5 (Component A, B, and F)
Toxicity
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h
LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates. EC50 - Daphnia pulex (Water flea) - 27,500 mg/l
Toxicity to algae EC50 - Lepomis macrochirus (Bluegill) - > 400,000 mg/l - 96 h

Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available
PBT and vPvB assessment
No data available
Other adverse effects
No data available

Component C, D, G
No data available

Component E
Toxicity
Toxicity to fish mortality NOEC - Oncorhynchus mykiss (rainbow trout) - 19.5 mg/l - 96 h
mortality LOEC - Pimephales promelas (fathead minnow) - 4.6 mg/l - 8 d
LC50 - Oncorhynchus mykiss (rainbow trout) - 3.6 mg/l - 96 h
Toxicity to algae Growth inhibition LOEC - Pseudokirchneriella subcapitata - 2.68 mg/l - 6 d
Persistence and degradability
No data available
Bioaccumulative potential
Bioaccumulation Cyprinus carpio (Carp) - 72 h
Bioconcentration factor (BCF): 3.9 - 5.3
Mobility in soil
No data available
PBT and vPvB assessment
No data available
Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. Disposal Considerations

For Dimethyl sulfoxide (DMSO) CAS-No. 67-68-5 (Component A, B, and F)
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

For Component C
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

For Component D
Contaminated packaging
Dispose of as unused product.

For Component E
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

For Component F

Contaminated packaging

For Component G
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. Transport Information:

UN Number	N/A
Hazard Class	N/A
Packing Group	N/A
Proper Shipping Name (DOT)	N/A

15. Regulatory information

California Proposition 65:	All components are not listed.
US TSCA (Toxic Substance Control Act):	All components are listed.
US CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):	**Component A, B, F:** 261.33 8(d). **Component C, D, E, G:** Not listed
US SARA Title III	**Component A, B, F** SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: Fire Hazard, Chronic Health Hazard **Component C and D** SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: N/A **Component E** SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard, Chronic Health Hazard **Component G** SARA 302 components: N/A SARA 313 components: N/A SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard
US Clean Air Act: *US Clean Water Act:*	**Component A, B, C, D, E, F, and G** Listed under Hazardous Air Pollutants: Not listed Listed under Class 1 Ozone Depletors: Not listed Listed under Class 2 Ozone Depletors: Not listed **Components A, B, C, D, E, F, and G** Listed under "Hazardous Substances": Not listed Listed under "Priority Pollutants": Not listed Listed under "Toxic Pollutants": Not listed

US States: Right-to-Know: Listed in the following States:

Component A,B and F:	**Component C:**	**Component D:**	**Component E:**	**Component G:**
Pennsylvania Revision Date 2007-03-01	Pennsylvania Revision Date :N/A	Pennsylvania Revision Date :N/A	Pennsylvania Revision Date N/A	Pennsylvania Revision Date N/A
New Jersey Revision Date 2007-03-01	New Jersey Revision Date :N/A	New Jersey Revision Date :N/A	New Jersey Revision Date N/A	New Jersey Revision Date N/A

European/International Regulations:

	Component A, B, F	Component C	Component D	Component E	Component G
EC EINICS	200-664-3	232-629-3	200-573-9	205-788-1	222-468-7
EC Risk statements	36/37/38	36/37/38-42	36/37/38	36/37/38-36/38-22-11-21/22-42-41-20/21/22	22/36/37/38
WGK	1	1	2	2	3
Canada-DSL/NDSL	Listed	Not listed	Listed	Listed	Listed
Canada-WHMIS classification	D2B	NA	D2B	D2B	D2B
Canada-Canadian Ingredient Disclosure List	Listed	NA	Not listed	Not Listed	Not Listed

16. Other Information

It is not intended for food, drug, household, agricultural or cosmetic use. A technically qualified individual experienced in handling potentially hazardous chemicals must supervise its use. The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. Users should make independent decisions regarding completeness of the information based on all sources available. AnaSpec shall not be held liable for any damage resulting from handling or from contact with the above product.