

Catalog No.: A600  
 Reference No.: N/A

Revision Date: May 12, 2008

### SECTION 1 – Product / Preparation and Company Identification

- 1.1 Cobra Venom Factor** *(For Research Use Only)*
- 1.2** This product has been used in an experimental setting to deplete complement activity *in vitro* and *in vivo*. Cobra Venom Factor (CVF) functions as an unregulated C3b molecule, thus activating and depleting the C3 and C5 via the alternative pathway.
- 1.3 Manufacturer:** Quidel Corporation – 10165 McKellar Court – San Diego, CA 92121  
**Telephone No.:** 1-858-552-1100    **Toll Free No.:** 1-800-524-6318    **Fax No.:** 1-408-616-4311
- 1.4 Emergency No.:** Poison Control @ 1-800-876-4766 (USA only)

### SECTION 2 – Composition / Ingredients Information

- 2.1 Description of Components:** One (1) vial containing approximately 1 ml frozen CVF Reagent
- 2.2 Hazardous Ingredients:** Dangerous solid or liquid substances present in >1% (or as required by applicable U.S., Canadian and E.U. regulations):

CAS#	EINECS	Chemical Name	% Weight	Classification:			
				US OSHA	WHMIS	EU	Risk Phrases
N/A	N/A	Cobra Venom Factor ( <i>Naja naja kaouthia</i> )	1.0	-	-	-	-

\*\* See Section 15 and Section 16 – Regulatory Information for additional information on hazard classifications.

### SECTION 3 – Hazard Identification

**Emergency Overview:** As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to this reagent and ensure prompt removal from skin, eyes, and clothing if contacted with.

- 3.1** *No significant health effects are anticipated from routine use of this reagent when following the precautions listed below.*
- 3.2** Contact with the CVF Reagent to the eyes and/or skin may cause irritation upon a single exposure. Avoid prolonged contact with this reagent.
- 3.3** This reagent contains material of animal origin and should be considered as potentially capable of transmitting infectious diseases.
- 3.4 Warning Properties:**

Chemical Name	Degree	Description
Cobra Venom Factor	Poor	Light clear and colorless; odorless

### SECTION 4 – First Aid Measures

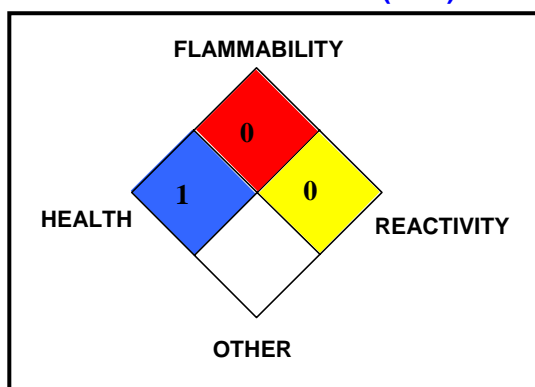
#### Special Instructions:

- 4.1 **Inhalation** Inhalation of this reagent is unlikely. If inhaled and causes discomfort, move exposed individual to fresh air. Seek medical attention if breathing is difficult or symptoms persist.
- 4.2 **Eye Contact** If this reagent enters the eyes, wash eyes gently under potable running water for 15 minutes or longer, making sure that the eyelids are held open. If pain or irritation occurs, obtain medical attention.
- 4.3 **Skin Contact** If this reagent contacts the skin and causes discomfort; remove any contaminated clothing and wash affected area with plenty of soap and water. If pain or irritation occurs, obtain medical attention.
- 4.4 **Ingestion** If this reagent is ingested, wash mouth out with water. If irritation or discomfort occurs, obtain medical attention.

### SECTION 5 – Fire Fighting Measures

- 5.1 **Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, or alcohol-resistant foam.
- 5.2 **Special Fire Fighting Procedures:** This material will not significantly contribute to the intensity of a fire. Use extinguishing material suitable to the surrounding fire. Utilize proper personal protective equipment when responding to any fire.
- 5.3 **Unusual Fire and Explosion Hazards:**
  - Explosion Sensitivity to Mechanical Impact: Not sensitive under normal conditions.
  - Explosion Sensitivity to Static Discharge: Not sensitive under normal conditions.
- 5.4 **Additional Considerations (Extraction Reagents):**
  - 5.4.1 Flash Point Non Combustible
  - 5.4.2 Auto-ignition Temperature Not Applicable
  - 5.4.3 Upper / Lower Explosion Limit Not Applicable
- 5.5 **NFPA Ratings** (see 'Definition of Terms' for explanation of numerical ratings):

#### Cobra Venom Factor (CVF)



*\*\*Only trained and competent personnel shall attempt to extinguish a fire. Contact emergency response personnel as required. Be cautious of surrounding materials that may react with the extinguishing media.*

### SECTION 6 – Accidental Release Measures

- 6.1 Personal Precautions:** This reagent contains materials of biological origin. Avoid personal contact. Use Universal Precautions during clean-up procedures.
- 6.2 Environmental Precautions:** No environmental hazard is anticipated provided that the material is handled and disposed of with due care. Contain spill to prevent migration.
- 6.3 Spill and Leak Procedures:** Large spills of this reagent are unlikely. Utilize safety glasses, protective gloves, and lab coat when responding to spills involving this Reagent. Absorb with inert material and place in container suitable for disposal. See Section 13 for Disposal Considerations.

### SECTION 7 – Handling and Storage

- 7.1 Handling:** As with all chemicals, avoid getting this reagent ON YOU or IN YOU. Wash exposed areas thoroughly after handling this reagent. Do not eat or drink while handling this reagent. This reagent should be handled only by qualified clinical or laboratory employees trained on the use of medical kits and who are familiar with the potential hazards.  
  
This reagent should be handled as though capable of transmitting infectious diseases. Universal Precautions should be followed when handling this reagent.
- 7.2 Hygiene:** Wash hands, forearms, and face thoroughly after handling this reagent and before eating, smoking, drinking, using the restroom, and at the end of the day.
- 7.3 Storage:** To maintain efficacy, store according to the package insert instructions.
- 7.4 Specific Use:** *For Research Use Only – Not for use in diagnostic procedures.*

### SECTION 8 – Exposure Controls and Personal Protection

**8.1 Exposure Limits:**

CAS#	Chemical Name	OSHA (PEL)	ACGIH (TLV)	MAK
-	Cobra Venom Factor	NE	NE	NE

(NE) Non-Established

**8.2 Occupational Exposure Controls:**

**8.2.1 Engineering Controls:**

No special engineering controls are required when working with this reagent. Use with adequate ventilation to minimize potential for inhalation exposure.

**8.2.2 Personal Protective Equipment (PPE):**

Respiratory

Protection: None needed under normal conditions of use.

Eye Contact:

Safety glasses are strongly recommended to prevent eye contact.

Hand Contact:

Impervious gloves (nitrile or equivalent) should be worn to prevent hand contact.

Skin Contact:

Lab Coat or similar garment should be worn.

**8.2.3 Environmental Controls:** No special environmental controls are required.

**SECTION 9 – Physical and Chemical Properties**

Characteristic	Cobra Venom Factor - 1%
Boiling Point (°C)	N/A
Melting Point (°C)	N/A
Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg)	N/A
Vapor Density (AIR = 1)	N/A
Evaporation Rate (Ether = 1)	N/A
pH:	N/A
Solubility in Water:	Soluble
Appearance and Odor:	Liquid, clear and colorless / odorless

**SECTION 10 – Stability and Reactivity**

Characteristic	Cobra Venom Factor - 1%
Stability	Stable
Conditions to Avoid	None Known
Materials to avoid (Incompatibilities)	None Known
Hazardous Decomposition or Byproducts	None Known
Hazardous Polymerization	Will not occur

## SECTION 11 – Toxicological Information

**11.1 Toxicity Data for Hazardous Ingredients:** There are currently no toxicity data available for this Reagent.

**11.2 Primary Routes of Exposure:**

*Overexposures related to this reagent are not expected.* Common routes of exposure may include ingestion and eye/skin contact. Specific paths of concern for potentially infectious materials are skin puncture, contact with broken skin, contact with eyes, contact with mucous membranes and inhalation of aerosolized material.

**11.3 Potential Effects of Acute Overexposure (by Route Of Exposure):**

This reagent contains material of animal origin and should be considered as potentially capable of transmitting infectious diseases.

INHALATION: Vapors, mists, sprays, or dusts of this product can cause irritation to the respiratory tract.

CONTACT WITH SKIN or EYES: Contact can cause eye or skin irritation.

SKIN ABSORPTION: Absorption of this reagent is unlikely through intact skin.

INGESTION: If the reagent is swallowed, irritation of the mouth, throat, and other tissues of the gastro-intestinal system can occur.

INJECTION: Accidental injection of this reagent may cause burning, reddening, and swelling in addition to the wound. Symptoms of such exposure can include those described under "Inhalation," "Contact with Skin or Eyes," and "Ingestion."

**11.4 Potential Effects of Chronic Exposure:**

Long-term skin or eye contact may result in dermatitis or eye irritation.

**11.5 Symptoms of Overexposure:**

Symptoms of overexposure may include: eye, skin, nose, and throat irritation.

**11.6 Medical Exposure Aggravated by Exposure:** None Known

**11.7 Carcinogenicity:**

The ingredients in this reagent are not listed as carcinogens by any of the following: ACGIH, IARC, NTP, or OSHA.

## SECTION 12 – Ecological Information

**12.1 Ecotoxicity**

No adverse effects on the environment are expected from this reagent. There is no aquatic toxicity data for this reagent at this time.

**12.2 Mobility**

Mobility data is not available for this reagent.

**12.3 Persistence and Degradability**

There is no persistence or degradation data for this reagent at this time.

**12.4 Bioaccumulative Potential**

Bioaccumulative Potential data is not available for this reagent.

## SECTION 13 – Disposal Considerations

Dispose of waste materials, unused components and contaminated packaging in compliance with country (e.g., Canada, EU, etc.) federal, state and local regulations. If unsure of the applicable requirements, contact the authorities for information.

## SECTION 14 – Transport Information

### 14.1 U.S. Transportation

This reagent is not regulated for transport.

### 14.2 Canadian Transportation

This reagent is not regulated for transport.

### 14.3 International Air Transportation

This reagent is not regulated for transport.

## SECTION 15 – Regulatory Information

### 15.1 U.S. Federal and State Regulations

	<b>Cobra Venom Factor - 1%</b>
40 CFR 355.30/355.40 - SECTION 302	Not Listed
40 CFR 302.4 - SECTION 304	Not Listed
40 CFR 372.65 - SECTION 313	Not Listed

U.S. SARA SECTION 311/312 FOR PRODUCT: Not Applicable

U.S. TSCA INVENTORY STATUS: Not Applicable

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):

This material is not found on either the Proposition 65 Carcinogen List or the Adverse Reproductive Effects List.

CALIFORNIA – 8 CCR SECTION 339 – DIRECTOR’S LIST OF HAZARDOUS SUBSTANCES:

Cobra Venom Factor	No CAS #	Not Present
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### 15.2 Label Information

ANSI Z129.1	<b>Cobra Venom Factor</b>	<b>Kit Package</b>
<b>Labeling:</b>	N/A	N/A
<b>Label Precautions:</b>	N/A	N/A

ENVIRONMENTAL HAZARDS: None Known

### 15.3 Canadian Regulations:

CANADIAN DSL/NDL INVENTORY STATUS: Not controlled under WHMIS. Not listed on DSL Inventory.

## Cobra Venom Factor (CVF) (Research Reagent / Complement Reagent)

### 15.4 HMIS Ratings (see 'Definition of Terms' for explanation of numerical ratings):

#### Cobra Venom Factor - 1%

<b>Health</b>	<b>1 *</b>
<b>Flammability</b>	<b>0</b>
<b>Physical Hazard</b>	<b>0</b>
<b>Protective Equipment</b>	<b>B</b>

### 15.5 EU Labeling Classification:

<b>Classification:</b> <b>Cobra Venom Factor - 1%:</b>  No Danger Symbols or labels required for this reagent.	<b>Risk Phrases:</b>  None	<b>Safety Phrases:</b>  None
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### 15.6 Japan: Existing and New Chemical Substances (ENCS): Not Listed

## SECTION 16 – Other Information

*"This reagent is derived from the venom of the Thailand Cobra (Naja naja kaouthia ) which can cause death if injected into the human body. Although most of the toxins have been removed during purification it should be handled with the appropriate precautions, including wearing of gloves and safety glasses."* This safety statement is from the Certificate of Analysis for the purified protein raw material.

This MSDS has been prepared in accordance with ANSI Z400.1 format. Every effort has been made to adhere to the hazard criteria and content requirements of the US OSHA Hazard Communication Standard, European Communities Safety Data Sheets Directive, Canadian Controlled Products Regulations, UK Chemical Hazard information and Packaging Regulations, and UN Globally Harmonized System of Classification and Labeling of Chemicals.

The hazard ratings on this MSDS are for appropriately trained workers using the Hazardous Materials Identification System (HMIS®) or a National Fire Protection Association (NFPA) 704 Program. The ratings are estimates and should be treated as such. The hazard rating scales range from (0) minimal hazards to (4) significant hazards or risks (Refer to Definitions of Terms at the end of this MSDS). Chronic (long-term) health effects are indicated in the HMIS by an asterisk (\*). HMIS is a registered trade and service mark of the NPCA. For details on HMIS ratings visit [www.paint.org/hmis](http://www.paint.org/hmis). For details on NFPA 704 visit [www.nfpa.org](http://www.nfpa.org).

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# Cobra Venom Factor (CVF)

## (Research Reagent / Complement Reagent)

### DEFINITIONS OF TERMS



A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

**CAS #:** This is the Chemical Abstract Service Number that uniquely identifies each compound.

**ACGIH** - American Conference of Governmental Industrial Hygienists, a professional association that establishes exposure limits.

**TLV** - Threshold Limit Value - an airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers can be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (**TWA**), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (**C**). Skin absorption effects must also be considered.

**OSHA** - U.S. Occupational Safety and Health Administration

**PEL** - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

**IDLH** - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called Recommended Exposure Levels (**RELs**). When no exposure guidelines are established, an entry of **NE** is made for reference. **Protective Equipment** - **A:** Safety Glasses. **B:** Safety glasses and gloves. **C:** Safety glasses, gloves and body protection. **D:** Splash goggles with face shield, gloves and body protection. **E:** Eye protection, gloves and dust mask respiratory protection. **F:** Eye protection, gloves, body protection and dust mask respiratory protection. **G:** Eye protection, gloves and air purifying respiratory protection.

#### HAZARD RATINGS:

**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM:** Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can cause permanent injury and can be fatal); **4** (extreme acute exposure hazard; single overexposure can be fatal). \* Indicates chronic hazard. Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

**NATIONAL FIRE PROTECTION ASSOCIATION:** Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

**FLAMMABILITY LIMITS IN AIR:** Much of the information related to fire and explosion is derived from the National Fire Protection Association

(**NFPA**). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

#### TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, **LDo**, **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants that are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: **EC** is the effect concentration in water.

Data from several sources are used to evaluate the cancer-causing potential of the material. The sources and ratings are: **IARC** - the International Agency for Research on Cancer; **1** = Carcinogenic to humans, **2A**, **2B** = Probably carcinogenic to humans, **3** = Unclassifiable as to carcinogenicity in humans, and **4** = Probably not carcinogenic to humans. **NTP** - the National Toxicology Program; **K** = Known to be a human carcinogen, and **R** = Reasonably anticipated to be a human carcinogen. **RTECS** - the Registry of Toxic Effects of Chemical Substances. **OSHA** - Occupational Safety and Health Administration and **CAL/OSHA** - California's subunit of the Occupational Safety and Health Administration; **Ca** = Carcinogen defined with no further categorization. **ACGIH** - American Conference of Governmental Industrial Hygienists; **A1** = Confirmed human carcinogen, **A2** = Suspected human carcinogen, **A3** = Confirmed animal carcinogen with unknown relevance to humans, **A4** = Not classifiable as a human carcinogen, and **A5** = Not suspected as a human carcinogen. **NIOSH** - U.S. National Institute for Occupational Safety and Health; **Ca** = Potential occupational carcinogen, with no further categorization. **EPA** - U.S. Environmental Protection Agency; **A** = Human carcinogen, **B** = Probable human carcinogen, **C** = Possible human carcinogen, **D** = Not classifiable as to human carcinogenicity, **E** = Evidence of Non-carcinogenicity for humans, **K** = Known human carcinogen, **L** = Likely to produce cancer in humans, **CBD** = Cannot be determined, **NL** = Not likely to be carcinogenic in humans, and **I** = Data are inadequate for an assessment of human carcinogenic potential.

#### REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively.

**Superfund Amendments and Reauthorization Act (SARA);** the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings that appear on a material's industrial package label.