

EXTENDED COVERAGE UPRIGHT SPRINKLER VK595 (K25.2) (CMDA/CMSA)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

1. DESCRIPTION

Viking Extended Coverage Upright Sprinkler VK595 is a thermosensitive solder link spray sprinkler with a nominal K-factor of 25.2 for maximum coverage areas of 14 feet by 14 feet (196 sq. ft.). The sprinkler is UL Listed as a standard response extended coverage Control Mode Density Area (CMDA) sprinkler for storage applications. It is also FM Approved as a quick response, extended coverage Control Mode Density Area (CMDA) sprinkler and as a Control Mode Specific Application (CMSA) sprinkler. The VK595 is FM Approved for storage applications. It is available with an ordinary or intermediate temperature rating to meet design requirements. The VK595 is especially advantageous as a means of decreasing the number of required sprinklers to protect occupancies requiring an area/ density application of water.

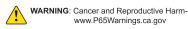
2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Class 2022-AS, EC Type

NOTE: This sprinkler is NOT Listed or Approved as an Early Suppression Fast Response Sprinkler. Refer to Approval Chart 1 and Design Criteria for cULus requirements, and refer to Approval Chart 2 and Design Criteria for FM Approval requirements that must be followed.





3. TECHNICAL DATA

Specifications:

Available since 2011.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread Sizes: Base Part No. 16859: 1" NPT Base Part No. 16885: 25 mm BSP

Nominal K-factor: 25.2 U.S. (363 metric*)

* Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Overall Length: 3-3/4" (95.3 mm)

Material Standards:

Sprinkler Frame: Brass Deflector: Copper Deflector Nut: Brass

Link Assembly: Solder, Nickel

Sealing Assembly: Beryllium Nickel with Polytetrafluoroethylene (PTFE).

Compression Screw: Stainless Steel

Button: Brass Hook: Monel Strut: Monel

Ejection Spring: Inconel

Ordering Information: (Also refer to the current Viking price list.)

Order Extended Coverage Upright Sprinkler VK595 by adding the appropriate suffix for the sprinkler temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A

Temperature Suffix (°F/°C): 165°/74° = C, 212°/100° = E

For example, sprinkler VK595 with 1" NPT threads, a Brass finish, and a 165°F/74 °C temperature rating = Part No. 16859AC.

Available Finishes And Temperature Ratings:

Refer to Table 1.

Accessories: (Also refer to the Viking website.)



EXTENDED COVERAGE UPRIGHT SPRINKLER VK595 (K25.2) (CMDA/CMSA)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Sprinkler Wrench:

Part No. 16888M/B (available since 2011)

Sprinkler Cabinet:

A. Six-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA or FM Installation Standards.

5. OPERATION

During fire conditions, when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive solder melts, and the two link halves separate, allowing the sprinkler to activate. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Model VK595 Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES							
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating¹	Maximum Ambient Ceiling Temperature ²	Frame Paint Color				
Ordinary	165 °F (74 °C)	100 °F (38 °C)	None				
Intermediate	212 °F (100 °C)	150 °F (66 °C)	White				

Available Sprinkler Finish: Brass

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.



EXTENDED COVERAGE UPRIGHT SPRINKLER VK595 (K25.2) (CMDA/CMSA)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Approval Chart 1 (UL) Standard Response Extended Coverage Upright Sprinkler VK595 (K25.2) Maximum 175 PSI (12 Bar) WWP										
Base Part Number¹ SIN	Sprinkler Style	Thread Size Nominal K-factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria below.)				
		Style	NPT	BSP	U.S.	metric ²	Inches	mm	cULus⁴	NYC
16859	VK595	Upright	1"	25.2	363	3-3/4"	95.3	A1	See Footnote 5.	
16885				25 mm	25.2	303	3-3/4	95.3	AI	See Fuolfiole 5.
	Approved Temperature Ratings A - 165 °F (74 °C) and 212 °F (100 °C)						Approved Finish 1 - Brass			

Footnotes

- ¹Base part number shown. For complete part number, refer to Viking's current price schedule.
- ² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
- ³ This table shows the listings and approvals available at the time of printing. Other approvals may be in process.
- ⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.
- ⁵ Meets New York City requirements, effective July 1, 2008.

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 above.)

cULus Listing Requirements:

Sprinkler VK595 is cULus Listed as a standard response extended coverage upright sprinkler for storage protection, for installation in accordance with the latest edition of NFPA 13 and in conjunction with the following guidelines:

- System types: Wet, Dry and Preaction systems are acceptable.
- Suitable for the protection of extra hazard and high-piled storage occupancies where area/density design criteria is provided.
- Suitable for "unobstructed" or "noncombustible obstructed" construction.
- Sprinkler VK595 has been specifically tested and listed for noncombustible obstructed construction and are suitable for use within trusses or bar joists having noncombustible web members greater than 1 inch (25.4 mm) when applying the 4 times obstruction criteria rule defined under "Obstructions to Sprinkler Discharge Pattern Development".
- The maximum area of coverage per sprinkler is 196 sq. ft. (18.2 sq. m). The maximum distance between sprinklers is 14 feet (4.3 m). The minimum distance between sprinklers is 8 feet (2.44 m). For a protection area of 144 sq. ft. (13.3 sq. m), the maximum distance between sprinklers is 15 feet (4.5 m) per NFPA 13, Table 8.8.2.1.2.
- The minimum flow requirement is to be based on the design density applied over the actual area of coverage per sprinkler.
- The minimum clearance between the deflector and the top of storage is 36 inches (0.9 m). For clearances of 36 inches (0.9 m) up to 48 inches (1.21 m), the minimum design pressure is 22 psi (1.52 bar). For clearances of 48 inches (1.21 m) and greater, the minimum design pressure is established by the minimum flow requirement [however, the pressure can never be less than 7 psi (.5 bar)].
- The ordinary and intermediate temperature rated VK595 sprinklers have been investigated for use in high-piled storage occupancies at the hydraulic demand normally associated with high temperature sprinklers. As such, the VK595 sprinklers are listed storage sprinklers having a K-factor greater than 11.2 and having ordinary and intermediate temperature ratings (that is, 165 °F and 212 °F). Consequently, the VK595 Sprinklers, in accordance with the latest edition of NFPA 13, may be used in conjunction with the density curves for high temperature sprinklers specified in the latest edition of NFPA 13.
- Sprinkler VK595 complies with the criterion for the protection of retail stores as described in section 20.3 of NFPA 13.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



EXTENDED COVERAGE UPRIGHT SPRINKLER VK595 (K25.2) (CMDA/CMSA)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Approval Chart 2 (FM) Quick Response Extended Coverage Upright Sprinkler VK595 (K25.2) Maximum 175 PSI (12 Bar) WWP Temperature KEY Finish A1X ← Escutcheon (if applicable)									
Base Part	SIN	Thread Size		Nominal K-factor		Overall Length		FM Approvals ³	
Number ¹	3114	NPT	BSP	U.S.	metric ²	Inches	mm	(Refer also to Design Criteria below.)	
16859	VK595	1"		25.2	363	3-3/4	95.3	۸.1	
16885	6885 VK395		25 mm	25.2	303	3-3/4	95.5	A1	
Approved Temperature Ratings						Approved Finish			
A - 165 °F (74 °C) and 212 °F (100 °C)					1 - Brass				

Footnotes

- ¹Base part number shown. For complete part number, refer to Viking's current price schedule.
- ² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

DESIGN CRITERIA-FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

- 1. Sprinkler VK595 is FM Approved as a quick response extended coverage upright Storage sprinkler as indicated in the FM Approval Guide.
 - For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheets 2-0 and 8-9).
- Approved storage sprinklers are also FM Approved for use as Non-Storage sprinklers.
 - For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0).

FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

· System type: Wet system ONLY.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria. For example, FM installation guidelines indicate the minimum spacing for this sprinkler is 10 ft. (3 m).

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

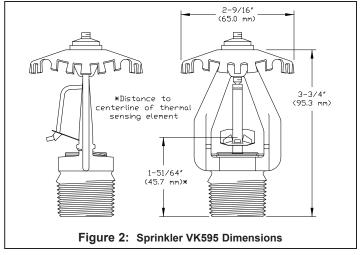


NOTE: Handle the sprinkler only by the frame arms and by using Sprinkler Wrench 16888M/B. DO NOT grip or apply any force to the fusible link assembly.

Apply a minimum-to-maximum torque of 20 to 30 ft. lbs. (26.8 to 40.2 Nm).

After installation, inspect the link assembly of each VK595 Sprinkler for damage. Verify that the link assembly and hook are positioned as illustrated in Figure 2, and that the link assembly has not been bent, creased, or forced out of its normal position in any way.

Figure 1: Sprinkler Wrench 16888M/B



³ This table shows the listings and approvals available at the time of printing. Other approvals may be in process.



CARE AND HANDLING OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsycs@vikingcorp.com

SPRINKLERS ARE FRAGILE - HANDLE WITH CARE!

General Handling and Storage:

- · Store sprinklers in a cool, dry place.
- Protect sprinklers during storage, transport, handling, and after installation.
- · Use the original shipping containers. DO NOT place sprinklers loose in boxes, bins, or buckets.
- · Keep sprinklers separated at all times. DO NOT allow metal parts to contact sprinkler operating elements.

For Pre-Assembled Drops:

- · Protect sprinklers during handling and after installation.
- For recessed assemblies, use the protective sprinkler cap (Viking Part Number 10364).

Sprinklers with Protective Shields or Caps:

- DO NOT remove shields or caps until after sprinkler installation and there no longer is potential for mechanical damage to the sprinkler operating elements.
- · Sprinkler shields or caps MUST be removed BEFORE placing the system in
- Remove the sprinkler shield by carefully pulling it apart where it is snapped together.
- · Remove the cap by turning it slightly and pulling it off the sprinkler.

Sprinkler Installation:

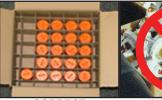
- · DO NOT use the sprinkler deflector or operating element to start or thread the sprinkler into a fitting.
- · Use only the designated sprinkler head wrench! Refer to the current sprinkler technical data page to determine the correct wrench for the model of sprinkler used.
- · DO NOT install sprinklers onto piping at the floor level.
- · Install sprinklers after the piping is in place to prevent mechanical damage.
- · DO NOT allow impacts such as hammer blows directly to sprinklers or to fittings, pipe, or couplings in close proximity to sprinklers. Sprinklers can be damaged from direct or indirect impacts.
- DO NOT attempt to remove drywall, paint, etc., from sprinklers.
- Take care not to over-tighten the sprinkler and/or damage its operating parts! **Maximum Torque:**

1/2" NPT: 14 ft-lbs. (19.0 N-m) 3/4" NPT: 20 ft-lbs. (27.1 N-m) 1" NPT: 30 ft-lbs. (40.7 N-m)



(Original container used)

INCORRECT (Placed loose in box)



CORRECT (Protected with caps)

INCORRECT (Protective caps not used)



CORRECT (Piping is in place at the ceiling)

INCORRECT (Sprinkler at floor level)



CORRECT (Special installation wrenches)



INCORRECT (Designated wrench not used)



WARNING: Cancer and Reproductive Harmwww.P65Warnings.ca.gov

A WARNING

Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed. Sprinklers that have been painted in the field must be replaced per NFPA 13. Protect sprinklers from paint and paint overspray in accordance with the installation standards. Do not clean sprinklers with soap and water, ammonia, or any other cleaning fluid. Do not use adhesives or solvents on sprinklers or their operating elements.

Refer to the appropriate technical data page and NFPA standards for complete care, handling, installation, and maintenance instructions. For additional product and system information Viking data pages and installation instructions are available on the Viking Web site at www.vikinggroupinc.com.



CARE AND HANDLING OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsycs@vikingcorp.com

PROTECTIVE SPRINKLER SHIELDS AND CAPS

General Handling and Storage:

Many Viking sprinklers are available with a plastic protective cap or shield temporarily covering the operating elements. The snapon shields and caps are factory installed and are intended to help protect the operating elements from mechanical damage during shipping, storage, and installation. NOTE: It is still necessary to follow the care and handling instructions on the appropriate sprinkler technical data sheets* when installing sprinklers with bulb shields or caps.

WHEN TO REMOVE THE SHIELDS AND CAPS:

NOTE: SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Remove the shield or cap from the sprinkler only after checking all of the following:

- · The sprinkler has been installed*.
- The wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.

SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!



Figure 1: Sprinkler shield being removed from a pendent sprinkler.



Figure 2: Sprinkler cap being removed from a pendent sprinkler.



Figure 3: Sprinkler cap being removed from and upright sprinkler.

HOW TO REMOVE SHIELDS AND CAPS:

No tools are necessary to remove the shields or caps from sprinklers. DO NOT use any sharp objects to remove them! Take care not to cause mechanical damage to sprinklers when removing the shields or caps. When removing caps from fusible element sprinklers, use care to prevent dislodging ejector springs or damaging fusible elements. NOTE: Squeezing the sprinkler cap excessively could damage sprinkler fusible elements.

- To remove the shield, simply pull the ends of the shield apart where it is snapped together. Refer to Figure 1.
- To remove the cap, turn it slightly and pull it off the sprinkler. Refer to Figures 2 and 3.

NOTICE Refer to the current sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.



Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

* Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www. vikinggroupinc.com.



CARE AND HANDLING OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

▲ CAUTION CONCEALED COVER ASSEMBLIES ARE FRAGILE!

TO ASSURE SATISFACTORY PERFORMANCE OF THE PRODUCT, HANDLE WITH CARE.



Concealed Sprinkler and Adapter Assembly with Protective Cap

Concealed Sprinkler and Adapter Assembly (Protective Cap Removed)



Cover Plate Assembly (Pendent Cover 12381 shown)



GENERAL HANDLING AND STORAGE INSTRUCTIONS:

- · Do not store in temperatures exceeding 100 °F (38 °C). Avoid direct sunlight and confined areas subject to heat.
- · Protect sprinklers and cover assemblies during storage, transport, handling, and after installation.
- -- Use original shipping containers.
- -- Do not place sprinklers or cover assemblies loose in boxes, bins, or buckets.
- Keep the sprinkler bodies covered with the protective sprinkler cap any time the sprinklers are shipped or handled, during testing of the system, and while ceiling finish work is being completed.
- Use only the designated Viking recessed sprinkler wrench (refer to the appropriate sprinkler data page) to install these sprinklers. **NOTE:** The protective cap is temporarily removed during installation and then placed back on the sprinkler for protection until finish work is completed.
- Do not over-tighten the sprinklers into fittings during installation.
- Do not use the sprinkler deflector to start or thread the sprinklers into fittings during installation.
- · Do not attempt to remove drywall, paint, etc., from the sprinklers.
- Remove the plastic protective cap from the sprinkler before attaching the cover plate assembly. PROTECTIVE CAPS <u>MUST</u> BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www. vikinggroupinc.com.



CARE AND HANDLING OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

USE THE FOLLOWING PRECAUTIONS WHEN HANDLING WAX-COATED SPRINKLERS

Many of Viking's sprinklers are available with factory-applied wax coating for corrosion resistance. These sprinklers MUST receive appropriate care and handling to avoid damaging the wax coating and to assure satisfactory performance of the product.

General Handling and Storage of Wax-Coated Sprinklers:

- Store the sprinklers in a cool, dry place (in temperatures below the maximum ambient temperature allowed for the sprinkler temperature rating. Refer to Table 1 below.)
- · Store containers of wax-coated sprinklers separate from other sprinklers.
- · Protect the sprinklers during storage, transport, handling, and after installation.
- · Use original shipping containers.
- · Do not place sprinklers in loose boxes, bins, or buckets.

Installation of Wax-Coated Sprinklers:

Use only the special sprinkler head wrench designed for installing wax-coated Viking sprinklers (any other wrench may damage the unit).

- · Take care not to crack the wax coating on the units.
- For touching up the wax coating after installation, wax is available from Viking in bar form. Refer to Table 1 below. The coating MUST be repaired after sprinkler installation to protect the corrosion-resistant properties of the sprinkler.
- Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they would be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.
- Inspect the coated sprinklers frequently soon after installation to verify the integrity of the corrosion resistant coating. Thereafter, inspect representative samples of the coated sprinklers in accordance with NFPA 25. Close up visual inspections are necessary to determine whether the sprinklers are being affected by corrosive conditions.

TABLE 1								
Sprinkler Temperature Rating (Fusing Point)	Wax Part Number	Wax Melting Point	Maximum Ambient Ceiling Temperature ¹	Wax Color				
155 °F (68 °C) / 165 °F (74 °C)	02568A	148 °F (64 °C)	100 °F (38 °C)	Light Brown				
175 °F (79 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown				
200 °F (93 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown				
220 °F (104 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown				
286 °F (141 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown				

¹Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

AWARNING

Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www. vikinggroupinc.com.



REGULATORY AND HEALTH WARNINGS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

Regulatory and Health Warnings applying to materials used in the manufacture and construction of fire protection products are provided herin as they relate to legally mandated jurisdictional regions.

A WARNING

STATE OF CALIFORNIA, USA

Installing or servicing fire protection products such as sprinklers, valves, piping etc. can expose you to chemicals including, but not limited to, lead, nickel, butadiene, titaninum dioxide, chromium, carbon black, and acrylonitrile which are known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, go to www.P65Warnings.ca.gov

2. WARRANTY TERMS AND CONDITIONS

For details of warranty, refer to Viking's current list price schedule at www.vikinggroupinc.com or contact Viking directly.