PHOTON KINETICS

1120 BARE FIBER ALIGNER
USER'S GUIDE

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90-0588-00
Rev. H
July 2019

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The Photon Kinetics Product Warranty is as follows:

1) Photon Kinetics warrants this products to be free from defects in materials and workmanship for a period of ninety (90) days from the date of shipment from our factory. This warranty does not include any parts or components which are consumed, worn or otherwise degraded during the course of the normal operation of the Product.

   a) Our Responsibility - Photon Kinetics' sole responsibility under this Warranty shall be to either repair or replace, at Photon Kinetics' option, any covered Product or component of the Product that fails during the Warranty period because of a defect in workmanship or materials. All replaced Products or Product components shall become Photon Kinetics' property. Replacement Products or Product components may be reconditioned parts that fully meet applicable specifications. The Warranty for these replacement parts is thirty (30) days or the remainder of the Warranty period, whichever is longer.

   b) Products Covered - The Warranty covers Products as delivered by Photon Kinetics to the customer, in unmodified condition. The customer understands that modification of any Product without Photon Kinetics' prior written consent shall invalidate the Warranty.

   c) Customer's Responsibility - The Warranty set forth above is contingent upon proper treatment and use of the Product and on maintenance of a safe and suitable site. The Warranty does not apply to repair or replacement if the Product has been subjected to misuse, unauthorized modification, improper or inadequate installation, maintenance, accident, unusual physical stress, or unauthorized integration with other products not covered by Photon Kinetics' Warranty.

   d) Other Limitations - The Warranty set forth above shall not be affected because of any technical advice, assistance, or service furnished by Photon Kinetics in connection with the Products. No obligation or liability shall arise from such assistance. The customer is not relying on Photon Kinetics' skill or judgment to select or furnish suitable Products for customer's purpose.

2) Photon Kinetics' Warranty to the customer shall be the standard Warranty for the Product which is in effect on the date of shipment to the customer.

3) THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR OBLIGATIONS, EXPRESS OR IMPLIED. SELLER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE. CUSTOMER AGREES THAT IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS OR LOSS OF USE OR ANY OTHER ECONOMIC LOSS, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. THE REMEDIES PROVIDED HEREIN ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES.

SAFETY INFORMATION

Safety Terms & Symbols

The following terms and symbols may appear throughout the user guide and have the following meanings.

Caution: Identifies conditions or practices that could result in damage to equipment or other property.

Warning: Identifies conditions or practices that could result in non-fatal personal injury.

Identifies conditions or practices that could result in damage to equipment or other property.

Safety Precautions

Warning - Laser Safety: Care should be taken when connecting these devices to an optical source such as an OTDR as the total light power emitted from the light source may also be present at the output of the bare fiber aligner or at the output of an optical fiber inserted into the bare fiber aligner.

Warning - Handling Optical Fibers: Exercise care when handling the unprotected ends of optical fibers - use appropriate eye protection and dispose of discarded fiber ends in a safe manner.

TABLE OF CONENTS

PRODUCT OVERVIEW

The 1120 Bare Fiber Aligner can be purchased in several different configurations to provide the optimal aligner for your application. The integrated 1120M Production Aligner shown above should be ideal for most production testing applications. However, it may be preferable to assemble a complete aligner from the components shown below. Several different configurations are possible by combining either a Field or Production Aligner (1120F or 1120P) with an 1120B Buffer Fiber or 1120J Jumper Fiber.. These components may also be purchased individually. Illustrations of each of the four production configurations are shown below:

Complete Module

1120M Production Aligner Module

1120M-125-☐-☐-☐

Fibers Aligned	Buffer Core/Clad	Buffer Length	Connector
125um OD	10/125 = Single-mode 50/125 = 50 um Multimode 62/125 = 62.5 um Multimode	0250 = 250 m 0500 = 500 m 1000 = 1000 m 1500 = 1500 m	FCA = FC-APC FCP = FC-PC SCA = SC-APC STP = ST-PC

Aligners

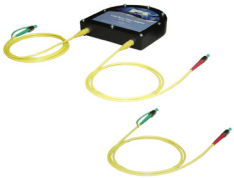
1120F Field Aligner

1120P Production Aligner

1120☐-☐

Configuration	Fibers Aligned
F = Field Aligner P = Poduction Aligner	125 = 125um OD 230 = 230um OD

Buffers & Jumpers



1120B Buffer & 1120J Jumper

1120☐-☐-☐-☐

Type	Fiber Core/Clad	Length	Connector
B = Buffer Fiber J = Jumper Fiber	10/125 = Single-mode 50/125 = 50 um Multimode 62/125 = 62.5 um Multimode	0002 = 2 m (Jumper only) 0250 = 250 m 0500 = 500 m 1000 = 1000 m 1500 = 1500 m	FCA = FC-APC FCP = FC-PC SCA = SC-APC STP = ST-PC

UNPACKING INSTRUCTIONS

Carefully remove the components of your 1120 from their shipping packages and take an inventory of the parts included.

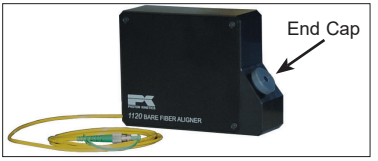
1120P and 1120F Aligner Configurations parts include:

- 1120 Bare Fiber Aligner Coupling Module (1120P-000, 1120F-000) or module integrated with buffer fiber module (1120P-XXX, 1120F-XXX)
- One 112X-RMC Refillable Index Matching Cartridge
- Cleaning Wire

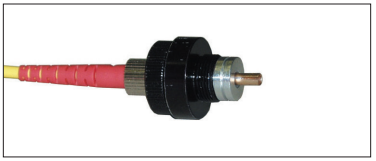
1120B Buffer Fiber parts include:

- 1120B Buffer Fiber Module with customer-specified connectors

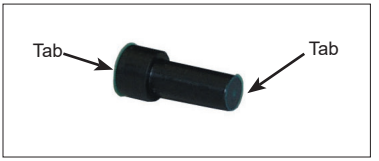
> **BEFORE YOU BEGIN:** Load the the 112X-IMC or 112X-RMC Index Matching Cartridge into the 1120 Bare Fiber Aligner by following the instructions below.



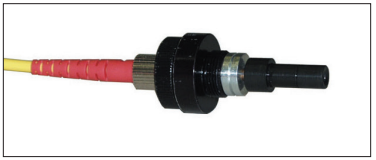
Locate the “D-shaped” coupling module end cap on the 1120F. Or, for the 1120P, simply pull the gray cylindrical end cap from the housing (some initial resistance will be encountered as the cap is restrained by an internal, spring-loaded ball plunger).



Unscrew and remove the coupling module end cap to expose the internal metal ferrule sleeve.



Remove the plastic tabs that seal the index matching cartridge. Leave any other cartridges sealed for later use.



After removing the tabs from the cartridge, push the larger end of the cartridge onto the metal sleeve.

Screw on the end cap to finger tight. Use the dust cap to seal the protruding cartridge when not in use.

OPERATION

The 1120 Bare Fiber Aligner is used to quickly connect bare optical fiber to a test equipment optical connector. Before using the 1120, ensure that a 112X-IMC or 112X-RMC Index Matching Cartridge is loaded into the 1120's coupling module (see previous section) and that the opposite end of the 1120 is connected to the OTDR or other test equipment bulkhead.

To couple a fiber to the test instrument with the 1120 Bare Fiber Aligner:

1. Strip at least 35 mm of coating from the fiber to expose bare glass and clean the fiber with isopropyl alcohol and a lint-free wipe.

2. Either break or cleave the fiber at a point approximately 25 mm from the coating shoulder.

3. Slowly insert the fiber into the end of the 1120 Bare Fiber Aligner coupling module until it contacts the module's internal connector ferrule. If an optical connection is not accomplished on the first insertion, pull the fiber back about 1/8" and push it forward, again making contact with the connector. If a connection still cannot be established, completely remove the fiber and re-prepare the fiber end.

SPECIFICATIONS

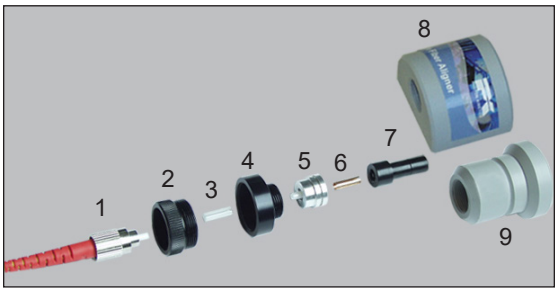
Coupling Loss	< 0.5 dB typical
Coupling Reflectance	< -45 dB typical
Operating Temperature	10 to 30**°C**
Dimensions	
Buffer Fiber Module (1120B)	12.5 x 12.5 x 2.5 cm (4.9 x 4.9 x 1.0 in.)
Field Aligner (1120F)	3.1 x 3.7 x 2.4 cm (1.2 x 1.5 x 0.9 in.)
Production Module (1120M)	11.9 x 16.3 x 4.9 cm (4.7 x 6.4 x 1.9 in.)
Production Aligner (1120P)	9.5 x 6.2 x 3.6 cm (3.7 x 2.4 x 1.4 in.)
Index Matching Gel Cartridge Lifetime	
112X-IMC	> 500 fiber couplings (typical)
112X-RMC	> 500 fiber couplings per refill (typical)

MAINTENANCE

CLEANING

Occasionally you may have to clean the jumper connector (with red strain relief) that is attached to the 1120 coupling module, and/or the ferrule assembly/metallic sleeve inside the 1120 coupling module. For the 1120M or P aligners, first pull the end cap (9) and attached coupling module assembly from the aligner housing (do not pull the end cap more than 20 cm out of the 1120M housing). To remove the connector (1) from the assembly, loosen the knurled retaining ring (2) by rotating it counterclockwise and then pull the connector ferrule out of the ceramic sleeve (3) inside the bulkhead housing. Clean the ferrule and then

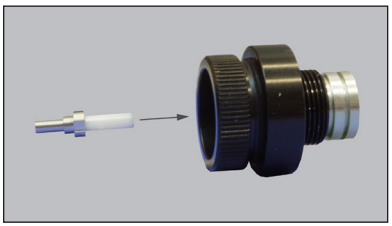
re-insert it back into the ceramic sleeve. Re-secure the ferrule by rotating the retaining ring (2) clockwise, being careful not to overtighten the ring. Note that over time the connector will wear, but they can be refurbished. Replacement jumper cables and jumper/buffer fiber assemblies are also available.

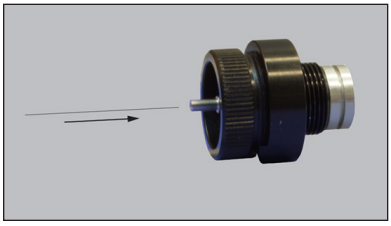


Coupling Module Assembly

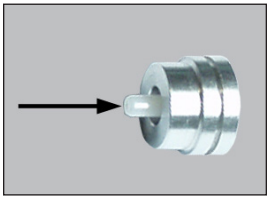
For more thorough cleaning, remove the coupling module assembly and gel cartridge (2-7) from the 1120F base (8) or the 1120M/P end cap (9) by unscrewing the adapter (4) from the base/end cap. Next, loosen the retaining ring (2) and pull apart the ferrule assembly (5,6) and gel cartridge (7) should slide out of the end cap/base (some gentle pressure on the end of the gel cartridge may be required). All parts, except for the cartridge, can be cleaned with 100% isopropanol. Complete immersion in an ultrasonic bath is optimal.

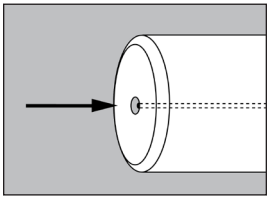
If a fiber happens to break off inside the ferrule assembly use the 112X-CLK Ferrule Cleaning Kit to clear the fragment. Simply insert the cleaning ferrule included in the kit into the ferrule assembly (2,3,4,5) as shown below left, and then feed a cleaning wire into the ferrule barrel and through both the cleaning and aligner ferrules to push out any fiber fragments.





If a cleaning ferrule is not available, it is possible to use just a cleaning wire to clear fiber fragments. First, disassemble the coupling module to access the aligner ferrule (5). Then grip a cleaning wire very close to its end (3-4 mm) and feed the wire into the ferrule as shown below. Note that some initial resistance may be encountered due to the recess surrounding the ferrule bore (right).





INDEX MATCHING GEL CARTRIDGE REPLACEMENT

The 1120 Index Matching Cartridges contain enough matching compound which, under normal use, should last for over 500 fiber insertions. Inconsistent couplings or high coupling losses or reflections may indicate the need to refill (112X-RMC) or replace (112X-IMC) the cartridge.

In order to replace the index matching gel cartridge, hold the coupling module and unscrew its end cap (6). Pull the empty cartridge (5) from the sleeve (4) and discard. Insert a new cartridge by first removing and discarding the sealing tabs from the ends of the IMC replacement cartridge, then simply push the large end of cartridge into coupling module sleeve and screw on the end cap until it is finger tight.

INDEX MATCHING GEL CARTRIDGE (112X-RMC) REFILLING

If you have purchased the refillable version of the index matching gel cartridge, the 112X-RMC, you can replenish the gel in your index matching gel cartridge with the gel-filled syringe (112X-SYR) that is purchased separately or included as part of the 112X-RFK Refill Kit.

To refill the RMC, remove it from the 1120 Coupling Module as described in the previous section. Next, unscrew the RMC cap and then, after removing the syringe dust cap, attach the RMC to the syringe's tip adapter. Inject index matching gel into the RMC until gel starts to emerge from the opposite end of the cartridge indicating that the cartridge is full. Remove the RMC from the syringe and replace its cap. Clean any excess gel from the cartridge with a lint free wipe. The RMC is now ready to be loaded into the 1120 coupling module. Store the syringe in an appropriate cool, dust-free location to prevent leakage or contamination.

Refillable Index Matching Cartridge with 112X-SYR Syringe

Syringe with RMC Attached

TROUBLESHOOTING

Symptom	Problem	Solution
High loss or no coupling	1) Poor cleave/end face quality on fiber under test. 2) Excessive contamination on either fiber under test or on 1120 coupling module connector. 3) Either 1) or 2) combined with insufficient index matching gel supply (IMC empty). 4) Broken fiber close to coupling point (either in 1120 jumper or fiber under test).	1) Re-cleave fiber under test and re-insert. 2) Clean 1120 coupling module connector. 3) Check IMC gel. Replace or re-fill IMC. 4) Use a visual fault locator to detect any severe bends or breaks near the coupling point.
High reflectance coupling	Insufficient index matching gel application	Check IMC. Replace or re-fill IMC.

SERVICING AND REPAIRS

If you need to return your 1120 Bare Fiber Aligner for service, return the unit in its original shipping carton. Inadequate packaging may lead to serious damage and may invalidate your remaining warranty.

Before returning the 1120, you must obtain a Return Materials Authorization (RMA) number from Photon Kinetics. To obtain an RMA number, please have your model number and serial number available, and call +1 503 526 4678 or send an email to support@pkinetics.com. All aligners should be returned to the following address:

Photon Kinetics, Inc.
Attn: RMA # [enter RMA # received from Photon Kinetics]
9305 SW Gemini Drive
Beaverton, OR 97008 USA

Please include the following with your shipment:

- Return Materials Authorization (RMA) number.
- Model number and serial number.
- Your name, address, phone number, fax number and email address.
- Address to which the 1120 should be returned.
- Description of the problem to be repaired.
- A purchase order for repair charges (not necessary for warranty repairs).
- Preferred shipping method. If no shipping instructions are received, shipping arrangements will be made by Photon Kinetics and charged to the customer.

INDEX MATCHING GEL MATERIAL SAFETY DATA SHEET

MATERIAL SAFETY DATA SHEET
MAY BE USED TO COMPLY WITH
OSHA'S HAZARD COMMUNICATION STANDARD
CFR 1910.1200. STANDARD MUST BE
CONSULTED FOR SPECIFIC REQUIREMENTS

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CATALOG #24231, 24260

IDENTITY (AS USED ON LABEL AND MANUF. LITERATURE)	NOTE: BLANK SPACES ARE NOT PERMITTED. IF ANY ITEM IS NOT APPLICABLE, OR NO INFORMATION IS AVAILABLE, THE SPACE MUST BE MARKED TO INDICATE THAT.
CARGILLE OPTICAL GEL **CODE 0608**	

SECTION 1

MANUFACTURER'S NAME CARGILLE LABORATORIES, INC.	EMERGENCY TELEPHONE NUMBER WEEKDAY 973 - 239 - 6633 24 HR CHEMTREC 800 - 424 - 9300	
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE)	TELEPHONE NUMBER FOR INFORMATION 973 – 239 - 6633	
55 COMMERCE ROAD	DATE PREPARED JUNE 3, 2005	SUPERCEDES PRIOR DATED MSDS FOR THIS MATERIAL
CEDAR GROVE, NJ 07009	SIGNATURE OF PREPARER (OPTIONAL)	

THE INFORMATION SUPPLIED IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED, IS MADE WITH RESPECT TO THE INFORMATION PRESENTED AND CARGILLE LABORATORIES ASSUMES NO RESPONSIBILITY FOR THE RESULTS OF THE USE OF THIS PRODUCT. THIS INFORMATION IS FURNISHED UPON THE CONDITION THAT THE PERSON RESPONSIBLE FOR ITS USE SHALL MAKE HIS OR HER OWN DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR HIS OR HER PARTICULAR PURPOSE.

CONDITIONS OF INTENDED AND NORMAL USE: (ABBR. C.I.U.) AS AN OPTICAL GEL AT NORMAL ROOM PRESSURE (760 mm Hg), TEMPERATURE 39 °F TO 104 °F IN A NON MISTED / NON AIRBORN STATE IN A ROOM HAVING NORMAL AIR CHANGES, (2) / HR., IN A TRAINED AND SUPERVISED LABORATORY / INDUSTRIAL SETTING USING STANDARD GL / GM PROCEDURES. SEE SECTIONS 7 AND 8

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	(COMMON NAME (S))	OSHA PEL CEILING	ACGIH TLV T.W.A.	SPECIFIC CHEMICAL IDENTITY INFORMATION OTHER LIMITS RECOMMENDED	% (OPTIONAL)
TRADE SECRET	SILICA, AMORPHOUS	* 20 mppcf	* * 20 mppcf	* * ACGIH RESPIRABLE DUST: 5 mg / CUBIC METER	
** LIMITS ARE FOR THIS INGREDIENT AS A RAW MATERIAL WHEN IT IS A DUST AS INCORPORATED IN OPTICAL GEL. THE SILICA IS PART OF A NON-DRYING GEL AND NOT SUBJECT TO BECOMING AIRBORNE AT C.I.U.				* * ACGIH TOTAL DUST: 10 mg / CUBIC METER	
TRADE SECRET	ALIPHATIC HYDROCARBONS		5 mg / CUBIC METER *		

*PEL CEILINGS & TLV T.W.A.s IF ANY SHOULD NOT OCCUR IF C.I.U. AND SECTIONS 7 & 8 FOLLOWED.

NOTE: PRODUCT NORMALLY SOLD IN 4 OZ. QUANTITIES. USED IN SINGLE DROP TO A FEW CUBIC CENTIMETERS PER APPLICATION.
SEE REQUISITIONER FOR SPECIFIC QUANTITIES INVOLVED.

SECTION 3 - PHYSICAL / CHEMICAL CHARACTERISTICS

BOILING POINT AT 760 mm Hg > 416 °C	>781 °F	SPECIFIC GRAVITY (H_2O = 1) TEMP. 23 °C / 73 °F	0.879
VAPOR PRESSURE IN mm Hg (TEMP.) 73 °F	NIL	MELTING POINT < -67 °C	< -88 °F
VAPOR DENSITY (AIR = 1) AT (mm Hg & TEMP.) 760 73 °F	N.D.F.	EVAPORATION RATE AT 760 mm Hg & 23 °C / 73 °F (MINERAL OIL = 1)	< 1
SOLUBILITY IN WATER AT (mm Hg & TEMP.) 760 73 °F	NIL	APPEARANCE AND ODOR WATER WHITE ODORLESS GEL	

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CUP METHOD USED) > 473 °F (245 °C) C.O.C.	FLAMMABLE LIMITS	LEL N.D.F.	UEL N.D.F.

EXTINGUISHING MEDIA
TREAT AS PETROLEUM GREASE FIRE, USE CARBON DIOXIDE, DRY CHEMICALS, WATER SPRAY (FOG), FOAM

SPECIAL FIRE FIGHTING PROCEDURES:
USE N.I.O.S.H. / MESA APPROVED S.C.B.A.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
SLIGHT, WHEN EXPOSED TO HEAT OR FLAME

ABBREVIATIONS: N.A. = NOT APPLICABLE; N.D.F. = NO DATA FOUND; TR.S. = TRADE SECRET; N.E. = NOT ESTABLISHED; C.I.U. = CONDITIONS OF INTENDED USE; < = LESS THAN; > = GREATER THAN.

SECTION 5 - REACTIVITY DATA

STABILITY	UNSTABLE		
	STABLE	YES	

INCOMPATIBILITY (MATERIALS AND / OR CONDITIONS TO AVOID)

NONE

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	NONE

SECTION 6 - HEALTH HAZARD DATA

ROUTE (S) OF ENTRY:	INHALATION?	SKIN?	MUCOUS MEMBRANES / EYES?	INGESTION?
(NOT LIKELY AT C.I.U.)	POSSIBLE	SLIGHT	SLIGHT	POSSIBLE

HEALTH HAZARDS (ACUTE AND CHRONIC)

NONE KNOWN AT C.I.U.

CARCINOGENICITY LISTED:	NTP?	IARC MONOGRAPHS?	OSHA CARCINOGEN?
	NO	NO	NO

SIGNS AND SYMPTOMS OF EXPOSURE

OILY FEEL; FUMES FROM OVERHEATING, OR BY-PRODUCTS OF DECOMPOSITION MAY BE RESPIRATORY IRRITANTS (THERE ARE NONE AT C.I.U.); MAY IRRITATE SKIN OR EYES; MAY HAVE LAXATIVE EFFECT IF INGESTED.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

N.D.F.

EMERGENCY AND FIRST AID PROCEDURES: INCLUDE POSSIBLE MATERIAL THAT MAY HAVE BEEN MIXED WITH LIQUID DURING USE.

INHALATION – (NOT LIKELY AT C.I.U.) IF CONCERN ARISES, REMOVE TO FRESH AIR. CONSULT PHYSICIAN.

SKIN & CLOTHES – PROMPT SOAP AND WATER WASH. IF DISCOMFORT PERSISTS, CONSULT PHYSICIAN.

EYES – FLUSH WITH WATER. CONSULT PHYSICIAN.

INGESTION – WASH OUT MOUTH, DO NOT INDUCE VOMITING. CONSULT PHYSICIAN.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE – FOLLOW C.I.U. SEE SECTION 1

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SCOOP UP AND ABSORB, PLACE IN PLASTIC (POLYETHYLENE OR POLYPROPYLENE) CONTAINER, CAP OR TWIST TIE CLOSURE (SEE SECTION 8).

WASTE DISPOSAL METHOD:

ALL CHEMICAL DISPOSALS MUST BE IN ACCORDANCE WITH CURRENT LOCAL, STATE, AND FEDERAL REGULATIONS.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

STORE BETWEEN 39 °F AND 104 °F (4 °C AND 40 °C)

OTHER PRECAUTIONS

N.A.

SECTION 8 - CONTROL MEASURES; WHEN USED AS INTENDED (SEE SECTION 1)

RESPIRATORY PROTECTION (SPECIFY TYPE)

SEE "VENTILATION"

VENTILATION		
	LOCAL EXHAUST *	SPECIAL N.A.
	MECHANICAL (GENERAL) *	OTHER N.A.

PROTECTIVE GLOVES	EYE PROTECTION
* PLASTIC SURGICAL TYPE, IF WORN	*

OTHER PROTECTIVE CLOTHING OR EQUIPMENT *

* = NOT MANDATORY EXCEPT AS GOOD LABORATORY INDUSTRIAL PRACTICES.
ALWAYS USE GOOD HYGIENIC WORK / PRACTICES AS TO HOUSEKEEPING, PERSONAL HYGIENE, USE OF CHEMICAL LAB APRON AND SPLASH GOGGLES, AVOIDANCE OF VAPORS, PROLONGED AND REPEATED SKIN CONTACT.

SPECIAL PRECAUTIONS

N.A.

OPTIONS FOR REFILLING 112X-RMC MATCHING GEL CARTRIDGES

112X-RFK	Refill Kit (includes 1oz. index matching gel and syringe)
112X-GEL	Index Matching Gel (1 oz.)
112X-SYR	Index Matching Gel Filling Syringe
112X-RMC	Refillable Index Matching Cartridge (one, filled)

DISPOSABLE MATCHING GEL CARTRIDGES

112X-IMC-03	Disposable Index Matching Cartridge (pack of 3)
112X-IMC-12	Disposable Index Matching Cartridge (pack of 12)

SERVICING YOUR 112X BARE FIBER ALIGNER

112X-CLK	Ferrule Cleaning Kit (wires and cleaning ferrule)
112X-CLW	Ferrule Cleaning Wires
112X-RFB	Re-termination of the FC-PC end
112X-RSS	Replacement Sleeve Set
112X-RFA	Replacement Ferrule Assembly

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