APPLIED TECHNOLOGY DEVELOPMENTS LIMITED
K1, Valley Way
Welland Industrial Estate
MARKET HARBOROUGH
Leicestershire
LE16 7PS

MATERIAL SAFETY DATA SHEET

MSDS Ref: MSDS0078	EMERGENCY NUMBERS
Valid from: 12-11-98	*Tel:* +44 1858 461014
	Fax: +44 1858 461015

SECTION I - IDENTIFICATION

Product Identifier: Barcode Ink
a.k.a ScanTrue II

SECTION II - COMPOSITION

Description: Opaque black liquid ink.

HAZARDOUS COMPONENT	CAS#	% range	OSHA PEL** mg/m³	ACGIH TLV** mg/m³	NIOSH REL** mg/m³	Symbol	R-phrase
Carbon black	1333-86-4	10-20	3.5	3.5	3.5	None	None
Dibutyl Phthalate	84-74-2	30-50	5.0	5.0	5.0	Xn	R20/21/22 R36/27/38
High boiling aliphatic Distillate solvent	64742-80-9	<10	None	None	None	Xn	R22, 43 R36/37/38
Quinol	123-31-9	≤0.2	2mg/m³	2mg/m³	2mg/m³	Xn	R20/22
Non-hazardous ingredients	proprietary	30-50	None	None	None	None	None

See section 3: potential health effects. See section 11: available toxicity information. See section 15: regulatory information.

SECTION III - HAZARD IDENTIFICATION

Emergency Overview: Eye, skin, respiratory irritant. Possible skin sensitiser. Harmful if swallowed.
NFPA Hazard Ratings: Health: 2 Flammability: 1 Reactivity: 0

POTENTIAL HEALTH EFFECTS

Eye Contact: Contact will cause irritation, tearing and burning paid. May injure cornea and conjunctiva.

Skin Contact: Very irritating to the skin. Can cause rashes and burns if not promptly washed off. May also be a skin sensitiser.

Ingestion: Can cause severe gastrointestinal disturbance. Excessive quantities may cause central nervous system depression, drowsiness dizziness, poor co-ordination and fatigue.

Inhalation: Can irritate respiratory passages and may cause central nervous system depression.

Chronic: Skin irritation and/or sensitisation may occur after prolonged or repeated exposure.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immediately flush with water. Remove contact lenses. Flush with copious amounts of water for at least 20 minutes. Seek medical advice.

Skin Contact: Rinse with water then wash with plenty of soap and water for 15 minutes while removing contaminated clothing. Seek medical advice. Clean contaminated clothing and shoes before reuse.

Ingestion: DO NOT INDUCE VOMITING. Aspiration into lungs during vomiting can be more dangerous than the toxicity of the ink. If patient is conscious, give two to four glasses of water to drink and seek medical advice immediately.

Inhalation: Remove to fresh air. If breathing difficult, give oxygen. If non-breathing, give CPR [Cardio Pulmonary Resuscitation]. If symptoms continue, seek medical advice.
In any case of persistent irritation, seek medical advice.

Note to Physician: Lavage is indicated for the patient who has ingested a large dose. Hydrocarbon pneumonitis could be a risk if this product is aspirated.

SECTION V - FIRE FIGHTING MEASURES

Flashpoint and Method: est. >104°C Closed Cup
Flammable Limits: N/A
Autoignition Temperature: N/A
Extinguishing Media: Foam, carbon dioxide, dry chemical.
Special Fire Fighting Procedures: Self contained breathing apparatus and full turn-out gear. Limit access by unauthorised personnel.
Unusual Fire and Explosion Hazards: Water fog may be used to cool containers, but is not recommended as an extinguishing agent, since it may cause boil-over or frothing.
Hazardous Decomposition Products: Oxides of carbon and nitrogen. Ammonia and unidentified organic compounds.

SECTION VI - ACCIDENTAL RELEASE MEASURES

General: Wear skin, eye and respiratory protection. Limit access to area.

Spill: Contain spill. Keep out of waterways and sewers. Absorb with inert material. Collect for disposal as a hazardous waste by a licensed hauler. Do not reuse empty container. Clean containers thoroughly before disposal.

SECTION VII - HANDLING AND STORAGE

Store in a cool [4-49°C], dry, well ventilated area in sealed containers. Keep away from children. Wear appropriate protective clothing/equipment when handling this material. Avoid contact with skin, eyes and clothing. Practice good hygiene.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit: None are established for the ink. Exposure limits for the individual components are found in Section 2.

Engineering Controls (ventilation):
General mechanical exhaust is probably adequate under normal use conditions. Airborne concentrations of components having published limits should be measured periodically. If airborne concentrations approach or exceed published exposure limits,

use local exhaust.

PERSONAL PROTECTION

Respiratory: If needed, because airborne concentrations of the regulated components can not be maintained below the published limits, use NIOSH-MSHA approved respirator.

Eye Protection: Chemical goggles or safety glasses with side shields are recommended. If risk of splashing is significant, use a full face shield.

Skin Protection: Always use gloves and lab coat. Arm covers and apron of an impervious material are indicated if contamination of arms and clothing seems likely.

Other: Eyewash and safety shower must be available nearby.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black, opaque liquid.		
Flammable Limits:	N/A		
Flashpoint and Method:	est. >104^{oC}	**Autoignition Temperature:**	N/A
Vapour Pressure:	mm Hg <0.004 est.	**Evaporation Rate (n-butyl Acetate=1):**	<1
Specific Gravity:	1.08	**Percent Volatiles:**	est.<86%
Solubility:	slight	**Boiling Point:**	est. 350^{o}F
pH:	approx. 10.2	**Vapour Density (air = 1):**	N/A
Melting/freezing Point:	<-20^{o}C	**Viscosity:**	@25^{o}C 35 cps

SECTION X - STABILITY AND REACTIVITY

Stability: Stable under normal operating conditions

Hazardous Polymerisation: Has not been reported.

Conditions to avoid: Avoid exposure to high temperatures.

Incompatibility: Oxidizing agents (i.e. chlorates, bromates, nitrates), strong acids and alkalis.

Hazardous Thermal Decomposition Products: Oxides of carbon and nitrogen, Ammonia and other unidentified organic compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Acute Toxicity: The LD50 (oral, rat) for all components [except hydroquinone] is >2 g/kg. The LD50 [oral, rat] of hydroquinone is 320 mg/kg, however, the concentration of hydroquinone is so low in the ink, that a large quantity of the ink would need to be ingested before the hydroquinone could cause significant toxic effects.

Subchronic Effects: Contains two components known to be skin sensitisers.

Chronic effects/carcinogenicity: .

Components Listed As Carcinogens By Regulatory Agencies: The ink is not listed.

Component: Carbon black

OSHA: Not listed *NIOSH:* X *NTP:* Not listed. *IARC:* 2B

Carbon black has been positive in some animal cancer studies and negative in others. There is not enough epidemiological evidence to support classifying carbon black as a human carcinogen. Consequently IARC has rated it as a possible human carcinogen. Carbon blacks contain a very low percentage of absorbed PAH's (poly nuclear aromatic hydrocarbons) which in the non-absorbed form have sometimes been found to be animal carcinogens. The carbon black used in this ink has <0.1% absorbed PAH's.

Component: Hydroquinone

OSHA: Not listed *NIOSH:* Not listed *IARC:*3

Hydroquinone has tested positive as a carcinogen in animal studies, but there is not enough positive evidence to establish it as a human carcinogen. IARC has listed it as

"not classifiable as a carcinogen to humans."
Component: Dibutyl Phthalate
OSHA: Not listed *NIOSH:* Not listed. *IARC:* 2B *EPA:* D
OSHA, NIOSH & IARC have not studied dibutyl phthalate. EPA rate it "D", which is "not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available".

Mutagenicity: Quinol is classified as a mutagen by OSHA.
Reproductive Effects: None known.

SECTION XII - ECOLOGICAL INFORMATION

Ecotoxicological Information: No known.
Chemical Fate Information: No known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose of according to appropriate local, regional and national regulations. In most cases, recommend incineration at a permitted hazardous waste facility. This ink contains dibutyl phthalate which banned from land disposal by RCRA.

SECTION XIV - TRANSPORT INFORMATION

For Quantities less than 10 kilograms:
Ground Transport: Not regulated
Air Transport: Not regulated
Ocean Transport: Not regulated

SECTION XV - REGULATORY INFORMATION

UNITED STATES
This product does not contain any ozone depleting substances (ODS). Nor were any ODS used in the manufacture of this product.

CONEG: The raw materials used to make this product do not contain mercury, lead, cadmium or hexavalent chromium in a total concentration greater than 100 ppm.
TSCA [Toxic Substances Control Act]: All components are listed on TSCA.
SARA [Superfund Amendments and Reauthorization Act] Title III:
40CFR355: Extremely hazardous chemicals in this product regulated under this statute may require
Threshold Planning: *Quinol CAS # 123-31-9*
40CFR372: Hazardous chemicals in this product regulated under this statute that may require release reporting:
Dibutyl phthalate CAS # 84-74-2
EPA Hazard Categories for this product are: Untested mixture with acute and chronic health hazards.
CAAA - Components in this product regulated under the Clean Air Act Amendment of 1990:
Dibutyl phthalate CAS # 84-74-2

State Regulations:
California Proposition 65: Components of this product known by the state of California to cause cancer, birth defects or other reproductive harm: NONE
California SCMQAD: As defined by this law, the concentration of VOCs in this ink is estimated to be <80%.
Massachusetts 105CMR670 Right to Know Act:
Components which could require reporting under this statute are:
Dibutyl Phthalate CAS # 84-74-2
Carbon Black CAS # 1333-86-4

Quinol *CAS # 123-31-9*

Pennsylvania Right to Know Hazardous Substance List:
Components of this ink which could require reporting are:
Dibutyl Phthalate, Carbon Black.

New Jersey: Components regulated under this law:
Dibutyl Phthalate, Carbon Black, Quinol.

CANADA

DSL/nDSL: All components are listed.

WHMI Classification: D2B – Materials causing other toxic effects.
NOTE: Export Notification is required for Dibutyl Phthalate.

EUROPEAN UNION

EINECS Status: All components are listed.

CLASSIFICATION: This product is classified as harmful based on criteria found in EU Directives 67/548 and 88/379.

SECTION XVI - OTHER INFORMATION

Revision Summary: Rev. A MSDS released September, 1998.
Rev. B 1/6/05 Section 1 'a.ka. ScanTrueII' added

The information and recommendations contained in this document are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to this information.