



Fowler



Associates, Inc.

CONSULTING - TESTING LAB - TRAINING COURSES - FORENSICS
On-Line Trade Magazines - RadJournal.com & ESDJournal.com

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Joe Decicco
USNRC Mail Stop T-8324
Washington, DC 20555

October 19, 2007

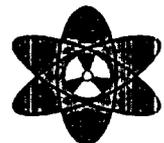
Dear Mr. Decicco:

Thank you for your time today. As we discussed my client, Lotus Color, uses an electron beam accelerator to color enhance diamonds. This process has been used safely for many decades. The accelerator is below 1.5 MeV in electron energy and certainly well below 1.5 MeV for the average X-ray production. As you know, only Beryllium can be activated with near 2 MeV electrons (Linacc produced 1.67 MeV X-rays from electrons – Bermann 1974) . The process used by Lotus Color cannot approach this. It is not a Linacc but a scanned style beam of electrons accelerated through d.c. potentials so the instantaneous dose is much lower than for a Linacc.

With this data, please inform us if the process used by Lotus Color is covered by the 10 CFR Parts 20, 30, et al. Requirements for Expanded Definition of Byproduct Material; Final Rule issued October 1, 2007. Please address the response letter to Lotus Color, you can use my address or email.

Sincerely,

Stephen L Fowler, BSEE, NRRPT, IRRSO, NARTE CESD Engr.





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Independent Evaluation of Lotus Color Diamond Color Enhancement Process

I have tested the products and reviewed the process and technology of Lotus Color for the Electronic Color Enhancement of Diamonds (attached).

I certify that both the process and the diamonds enhanced by this process are not made radioactive and are safe.

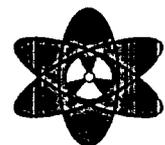
The process, which Lotus Color uses to enhance the color of the diamonds, has no possibility of causing the finished product to be radioactive or unsafe.

Further, the process of Lotus Color does not produce "by products" as described in 10 CFR Parts 20, 30, et al. Requirements for Expanded Definition of Byproduct Material; Final Rule issued October 1, 2007 and is therefore not covered by these rules.

My attached resume outlines my position as an international expert in this field.

Sincerely,

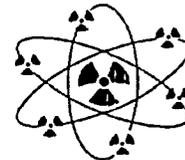
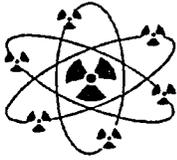
Stephen L Fowler, BSEE, NRRPT, IRRSO, CESD Engr.



Residual Radioactivity Test

On

Lotus Color



Electron Beam Color Enhanced Diamonds

All minerals have natural radioactivity just as does the human body. In diamonds, both non-radioactive carbon-12 and the naturally occurring radioactive isotope carbon-14 are found. Therefore, both Non-irradiated and irradiated diamonds were tested for their natural and for any residual radioactivity, which might be induced from the color enhancement process.

The tests were performed in a scintillation crystal well counter integrated over 5 minutes. The following are the average counts per minute of three tests per sample (CPM).

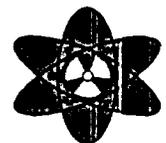
Diamonds Tested	Background CPM	Samples CPM	Residual CPM	Radioactivity CPM/ct
0.88 ct Non Irradiated	22	29	7	8.0
1.25 ct Irradiated	23	31	8	6.4

Statistically there is no difference in the residual radioactivity of the non-irradiated and the irradiated diamonds. Therefore the residual radioactivity is within the variations expected for natural diamonds and none is induced by the electron beam process.

It is well known that medium energy electron beams have insufficient energies to activate diamonds and to make them radioactive. Lotus Color uses only medium energy electrons (well below 2 MeV). Lotus Color enhancement process is inherently safe for consumer use. Medium energy electron beams are used in the food and food packaging industries indicating the safety of this process.

Stephen L Fowler, BSEE, NRRPT, IRRSO, CESD Engr.

North Carolina registration no. S000317 and South Carolina registration no. 00-0216





Stephen L. Fowler

President, Fowler Associates, Inc.

Leading international expert in Electrical Engineering, Radiation Processing Technology,
Radiation Safety, Electrostatic Control and Packaging.

Education

BS Electrical Engineering - cum laude - USC
US Air Force Electronics Schools

Published papers, given speeches, seminars and lectures on Radiation Engineering,
Radiation Safety, Packaging, Static Control and Static Test Methods

Experience

38 years of engineering experience
Including
29 years in radiation engineering
19 years in ESD engineering
17 years in technical marketing

Electrostatic Plastics Marketing Manager - Cryovac
Manager Radiation Engineering - Cryovac
Electronics - USAF

Holder of several patents

Member of the ASTM, EIA, ESD Association, AATCC and the Health Physics Society
Chairman of the AATCC Static Committee (RA-32)

Past Chairman of the Electronic Industries Association's Packaging ESD Committee (PEPS)

**North Carolina registration no. S000317 and South Carolina registration no. 00-0216
to provide radiation consultation and training
NARTE Certified ESD Control Engineer no. ESD-00010-NE
Registered Radiation Protection Technologist (NRRPT)
Registered Radiation Safety Officer (IRRSO)**

Publications by Stephen L. Fowler

October , 2007

Since 1997 - Publisher and contributing editor for the ESD Journal - an on-line trade magazine for the Electrostatic Industry all articles are available on-line at:<http://www.esdjournal.com>

Since 1997 - Publisher and contributing editor for the RAD Journal - an on-line trade magazine for the Radiation Processing Industry all articles are available on-line at:<http://www.radjournal.com>

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