

# IMPERADOR GEMS, LTD.

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## Abstract:

Petroco Inc. is trimming its conglomerate by selling two subsidiaries: Beryline Mining Group and Beryline Laboratories. Of the two Beryline industries, the Beryline Mining Group (see table 1.1) is the safest investment because it possesses some of the most productive emerald mines in the world.

**Table 1.1** *Beryline Mining Group, Beryl Sources and Emerald Production 1983-1985*

<b>location</b>	<b>mine / site</b>	<b>emerald production (Carats) (U.S.)</b>	<b>value x1000</b>	<b>remarks</b>
<i>Lofetton, Norway</i>	<i>Shadow Mine Sites A-J</i>	<i>4,101,660</i>	<i>\$2,500</i>	<i>No major crystal deposits. Good source of ore.</i>
<i>Rio Fora, Brazil</i>	<i>Whispering Grotto Sites A-C</i>	<i>13,655,900</i>	<i>14,480</i>	<i>Splendid crystals, many gem quality.</i>
<i>Poonag, India</i>	<i>People's Mine Sites 1-9 Junior Mine Sites 1-4</i>	<i>10,270,360</i>	<i>6,395</i>	<i>Fine aquamarine crystals.</i>
<i>Comocut, India</i>	<i>Lost Cavern Sites 1-6</i>	<i>7,599,000</i>	<i>6,000</i>	<i>Classic emerald deposit.</i>

*quantitative  
symbols*

*The Beryline  
Laboratories  
would likely not  
offer any return  
on an  
investment.*

*Since its  
foundation, the  
Beryline  
Laboratories,  
whose primary  
task is to  
produce  
artificial  
emeralds, has  
failed to  
introduce a  
viable product.*

*Imperador  
Gems, Ltd.  
could become  
the world's  
leading supplier  
of emeralds by  
acquiring the  
Beryline Mining  
Group and  
could expect to  
capture 21% of  
the emerald  
market.*

*Imperador  
Gems, Ltd. has  
no use for  
Beryline  
Laboratories.  
Beryline  
Laboratories'  
latest failure is  
an apparatus  
called the  
"beryl box".*

*Current empirical testing on the recently revealed "beryl box" failed to substantiate Beryline Laboratories' claims that the apparatus was capable of accelerating the growth rate of synthetic emeralds.*

*Beryline Laboratories, anxious to capture a portion of the created emeralds' market, unveiled the "beryl box" as a breakthrough in emerald synthesis because of its ability to arrange the nuclei in synthetic emeralds more rapidly than conventional processes.*

*However, the application of the nucleation-rate equation (A) during the crystallization process in the "beryl box"*

*showed no increase in the activation rate of nucleation.*

*Because of inaccuracies which often occur when measuring the crystallization interval of synthetic emeralds, the emerald's growth rate (B) was also studied. From the point after which nucleation ceases, the "beryl box" emerald matured after an estimated 10 to 12 months, the average incubation period for synthetic emeralds.*

*definition  
other  
symbols*

*definition*

*K*

*N*

*N<sub>v</sub>*

*R<sub>i</sub>*

*V<sub>i</sub><sup>dpl</sup>*

Constant growth rate for flux-fusion

synthetic  
growth  
Number of crystals  
Density of crystal  
Radius of  $i$  th  
crystal  
Volume of the  
accumulation area  
surrounding  
the  $i$  th crystal  
Volume of spatial  
effect

D

F

E

Degree of  
saturation relating  
to flux  
Germination factor  
of  
nucleation Time