

Polaris Sensor Technologies Inc.  
 E39 CMR Von Braun Research Hall UAH  
 Huntsville, AL 35899, USA  
 001-256-824-2129, -6547, -6698 fax

Prague, March 3,  
 2005

## INVOICE No. (faktura c.) 2521002

According to your PO# 05-040 we are sending you this invoice: *(Na zaklade Vasi objednávky c.05-040 Vam zasilame tuto fakturu):*

We are charging you for *(uctujeme Vam za):*

Item (polozka):	Price/pc USD	Quantity pcs	Price USD
Calomel single crystal (Hg <sub>2</sub> Cl <sub>2</sub> , Mercurous chloride) <i>(monokrystal kalomelu, Hg<sub>2</sub>Cl<sub>2</sub>, chlorid rtutny)</i> Country of origin (zeme puvodu): The Czech Republic Dimensions in mm (roughly): dia. 28, length 40. <i>(Rozmery v mm cca: prumer 28, delka 40)</i> Shape: "smaller half" of the crystal boule.	1,868.70	1	1,868.70
Weight ( <i>Hmotnost</i> ): 65 g			
+ polishing (lesteni)			n/a
+ transportation, handling, packing and other costs <i>(doprava, manipulace, balne, aj.)</i>			111.54
<b>TOTAL PRICE of the shipment (celk.cena dodavky):</b>			<b>1,980.24</b>

**You should pay the following sum (exact final sum, without bank fees and conversion expenses)** *(zaplatte nasledujici sumu (cisteho, bez bankovnich a konverznich poplatku) :*

**USD 1,980.24 (it does not include VAT)**

Incoterms 2000: CPT Huntsville, AL, USA

We would appreciate if you pay the sum **within 10 days** directly to our bank account by means of SWIFT *(zaplatte, prosim tuto sumu primo na nas ucet s pouzitim SWIFT kodu):*

SWIFT (BIC): KOMB CZPP  
 Bank: Komerční banka a.s., Dukelských hrdinů 37, 170 00 Praha 7, Czech Republic  
 Account No.: 348332005150111 / 0100  
 IBAN: CZ65 0100 0348 3320 0515 0111  
 Account name: Cestmir Barta

**OR: You can send a check.**

Sincerely

Cestmir Barta, director/CEO  
 BBT-Materials Processing, Crystal Science & Technology Institute  
 Doubická 11, 184 00 Praha 84, Czech Republic  
 e-mail: [bartabbt@atlas.cz](mailto:bartabbt@atlas.cz)

**Certificate No. 2521002**

(to purchase order PO# 05-040)  
(k objednavce c. 05-040)

**Name of goods (nazev zbozi):**

Calomel single crystal ( $\text{Hg}_2\text{Cl}_2$ , Mercurous chloride)  
(*monokrystal kalomelu*,  $\text{Hg}_2\text{Cl}_2$ , chlorid rtutny)  
Country of origin (zeme puvodu): The Czech Republic

**Dimensions in mm (roughly): diameter 28, length 40.**

(*Rozmery v mm cca: prumer 28, delka 40*)

**Quantity (mnozstvi):** 1 pc (kus)

Signature:

**Packing Page (balny list):**

(to purchase order No. PO# 05-040)  
(k objednavce c. 05-0400)

<u>No.</u>	<u>Name (nazev)</u>	<u>Quantity/pcs (mnozstvi/ks)</u>
1.	Calomel single crystal ( $\text{Hg}_2\text{Cl}_2$ , Mercurous chloride) ( <i>monokrystal kalomelu</i> , $\text{Hg}_2\text{Cl}_2$ , chlorid rtutny)	1
2.	Certificate (certifikat)	1
3.	Invoice (faktura)	1
4.	Toxicity and handling instructions (Toxicita a pokyny k manipulaci)	1

Signature:

**Delivery Address - Consignee (dodaci adresa - odberater):**

**Routing/Bill of Landing Information:**

**Port of Destination:** Huntsville, AL 35899, USA

**Consignee:** Polaris Sensor Technologies Inc.

E39 CMR Von Braun Research Hall UAH

Huntsville, AL 35899, USA

Larry Pezzaniti, Jacob Woodruff

001-256-824-2129, -6547, -6698 fax

[www.polarissensor.com](http://www.polarissensor.com)

[jacob\\_woodruff@yahoo.com](mailto:jacob_woodruff@yahoo.com), [larry@polarissensor.com](mailto:larry@polarissensor.com)

**Name and address of consignor (seller) (nazev a adresa prodavajiciho):**

Cestmir Barta, BBT-Materials Processing, Crystal Science & Technology Institute

Doubicka 11, 184 00 Praha 84, Czech Republic,

Phone: +420-284890447, FAX: +420-284689289, e-mail: [bartabbt@atlas.cz](mailto:bartabbt@atlas.cz)

**Gross weight / net weight (hruba a cista hmotnost):** 200g / 65g

**Do not expose to X-rays or to optical radiation of wavelength shorter than 420 nm (do examination under orange or red illumination).**

**Handle with care - avoid strong mechanical and thermal shocks.**

**Do not expose to X-rays or to optical radiation of wavelength shorter than 420 nm (do examination under orange or red illumination).**

**Handle with care - avoid strong mechanical and thermal shocks.**

**BASIC TOXICITY AND HANDLING INSTRUCTIONS FOR  
CALOMEL (Hg<sub>2</sub>Cl<sub>2</sub>) SINGLE CRYSTALS**

Mercury compounds are potentially harmful to your health. Fortunately, mercurous chloride

( $\text{Hg}_2\text{Cl}_2$ , Calomel) is insoluble not only in water but also in all organic solvents and therefore cannot be absorbed through the skin. Calomel was used in the past as a medicinal laxative. However, a toxicity problem may arise if the crystal should decompose. In this instance, products of decomposition are soluble and can be potentially harmful. To avoid this situation it is necessary to keep Calomel away from less noble metals such as copper (Cu), aluminium (Al), etc. as Calomel reacts with them upon an amalgam. We strongly recommend glass or polyethylene vessels as the most suitable for the preservation of Calomel powder. Clean (unused) polyethylene bags are recommended for the storage of Calomel elements. When working with Calomel, i.e. cutting, polishing, grinding, it is necessary to keep normal hygienic rules such as washing hands after handling, total abstinence from drinking and eating while working with the material, etc. It is also necessary to gather Calomel waste and remnants from the production and forming processes. These remains can be used as raw material for crystal growth, pyrotechnical production, analytics (Calomel electrodes), etc. When handling the formed single crystals and crystal elements the following instructions should be followed:

1. Do not expose Calomel to X-rays or to optical radiation of wavelength shorter than 420 nm.
2. Avoid direct contact with less noble metals: Al, Cu, Zn, etc.
3. Avoid strong mechanical and thermal shocks.
4. Grinding and polishing should be performed under orange or red illumination.
5. Gloves must be used when touching the ground surfaces of the crystal (polyethylene, PVC, PTFE (Teflon)) or tweezers whose tips are coated with these soft plastics or cork. Touch it very gently.
6. To avoid a mechanical damage and to preserve a high quality of the polished surface, the polished surface should not be touched under any circumstances.
7. In order to protect the polished crystal element, it should be stored in fresh polyethylene bag. The size of the bag should be as small as possible so that only ground surfaces are in mechanical contact with the polyethylene bag and the polished surfaces are free.
8. Unless the polished crystal surfaces are provided with protective (anti-reflective) coatings, do not expose them to gases like ammonia ( $\text{NH}_3$ ) or hydrogen sulphide ( $\text{H}_2\text{S}$ ) and avoid heating them to temperatures above  $80^\circ\text{C}$ .



## Safety statement

**We confirm that the shipped material – Calomel – is safe and does not represent any danger both for human health and the airplane transportation. It is not harmful, explosive, inflammable. It is used as a unique optical material for construction of polarizers. It is chemically stable and insoluble.**

Cestmir Barta, PhD., director+CEO  
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