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BT[®]
BBT – MATERIALS PROCESSING



BBT facility located in Zdiby – Premysleni (CZ)

Your partner for Calomel Infrared birefringent Optics

CALOMEL MONOCRYSTALS

POLARIZATION OPTICS / IR SUBSTRATES / AO CELLS

BROADBAND TRANSPARENCY FROM VIS TO LWIR
THE HIGHEST BIREFRINGENCE ON THE MARKET

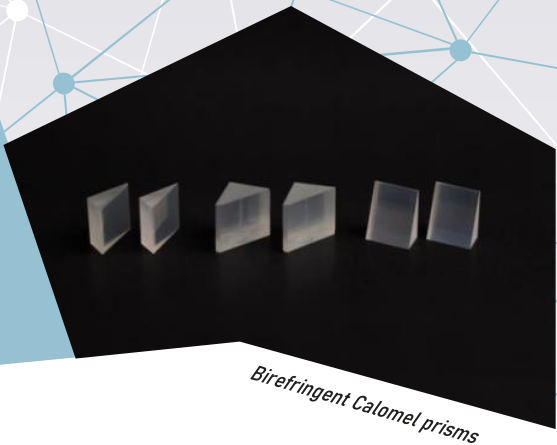
(0.4 – 17μm)
 $\Delta n = 0.683 @ 593nm$

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BBT – MATERIALS PROCESSING

Birefringent crystal optics for Infrared Applications up to 17μm

CRYSTALLINE POLARIZERS for MIR / LWR
SAVART PLATES
BEAM DISPLACERS
CUSTOM COMPONENTS
AO CELLS
BIREFRINGENT COMPONENTS FOR
COLLINEAR FTIR SPECTROSCOPY AND
INTERFEROMETRY



Birefringent Calomel prisms

Transparency 0.4 - 17μm
Birefringence $\Delta n = 0.683 @ 593 \text{ nm}$
High CW laser load resistance



Calomel crystal boules

"THE ONLY OPTICAL
BIREFRINGENT CRYSTAL
TRANSPARENT UP TO 17μm ON
THE MARKET"

BBT – Materials Processing is a small technology company and worldwide leader in crystal growth and processing of high purity Calomel crystals for infrared optics. The unique properties of this optical material make it ideally suited for manufacturing of various types of IR polarization components such as polarizers, Savart plates, polarizing prisms, birefringent components for FTIR spectroscopy, AO substrates and other custom components.

ABOUT CALOMEL
Calomel (mercurous chloride) is a tetragonal crystalline material which is transparent from visible (0.38μm) up to mid-thermal region (17μm) and exhibits a very strong birefringence ($\Delta n=0.683$). These two parameters make it a great candidate for infrared polarization optics as polarizers, polarizing beamsplitters, beam displacers, Savart plates, etc. Calomel IR components find a place in every application requiring a high degree of IR polarization, such as spectroscopy, astronomy, optical laboratories, R&D institutions, chemical industry, industrial applications operating high power CW lasers, etc.

MATERIAL HIGHLIGHTS

Ultra-broadband transparency	0.4 - 17μm
Highest birefringence on the market	$\Delta n = 0,683$
Optically positive	$n_e > n_o$
Low velocity of elastic wave	347 m/s
High AO merit M_2	800

"A PERFECT BLEND OF
EXPERTISE
AND MATERIAL TECHNOLOGY
FOR YOUR INFRARED AND
POLARIZATION APPLICATION"

RESEARCH AND DEVELOPMENT

R&D IN OPTICS AND ACOUSTO-OPTICS
The scientific team of BBT – Materials Processing, Ltd. participated as a prime- or subcontractor in a series of technological contracts focused on the development of new optical and acousto-optical components for terrestrial and space use. These projects, often with international participants, have been supported by various government or non-government institutions and support programs incl. ESA, H2020, EUREKA, FP7 program and others.

SPACE SECTOR EXPERIMENTS
BBT team has a long-term experience in the development of space devices for material research and crystal growth under microgravity conditions, which started with development of the first space furnace in late 80's (at that time within Inst. of Physics, CAS). Calomel monocrystal is also space-qualified material (under ESA conditions) to be used in devices operating in space environment.

RESEARCH COOPERATION
BBT – Materials Processing Ltd. has a long-term experience in Research and Development activities in Crystal growth, Optics, Acousto-Optics, and relevant areas.
If you are interested in cooperation, do not hesitate to contact us at info@calomel.cz

PRODUCTS

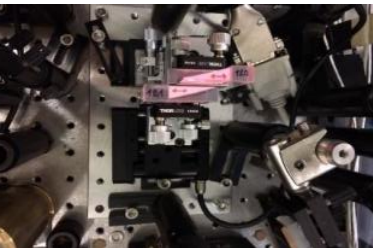
POLARIZATION OPTICS

The current optical market for MIR/LWR polarizers is covered only by wire-grid or holographic polarizers which offer only a low extinction ratio and damage threshold, limiting the final performance of the product. BBT offers birefringent polarization optics with broadband transmission and high extinction ratio. Standard production: Glan-Foucault, Wollaston polarizers, Dove prisms, and others.



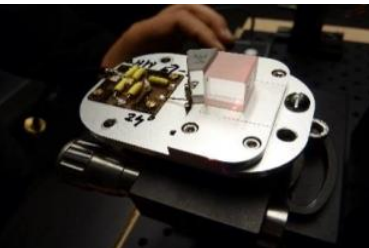
FTIR SPECTROSCOPY

Extreme material anisotropy and crystal birefringence ($n_o = 1.973$, $n_e = 2.656 @ 589\text{nm}$, $\Delta n = 0.683$) make calomel crystal a great candidate for variable phase delay components applied in hybrid interferometers and FTIR spectroscopy devices. The substrates may be applied as an alternative solution for bulky devices using vibration sensitive Michelson interferometer and other types.



ACOUSTO OPTICS

Thanks to the Calomel's high AO figure of merit M_2 , Calomel is suitable for the construction of acousto-optical devices. The Calomel transparency (0.38μm to 20μm) allows the use of AO units in a broad spectral range (compared to TeO_2) covering a very interesting thermal IR region. The substrates can be used for the production of AOTF, AOD or AOM.



CUSTOM PRODUCTS

BBT – Materials Processing offers a wide spectrum of non-polarizing optical elements for operating light in the MMR and LWR spectral regions. Custom-made prisms are available in different shapes, angles, and configurations and may be used for a wide range of applications. We also provide manufacturing possibilities for other different types and shapes, depending on the customer's needs. Please feel free to contact us for inquiry.



Calomel based MIR polarizers