

PRECIOUS APPRAISAL

No. 17
30th May 2022



- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

MARKET SPOTLIGHT

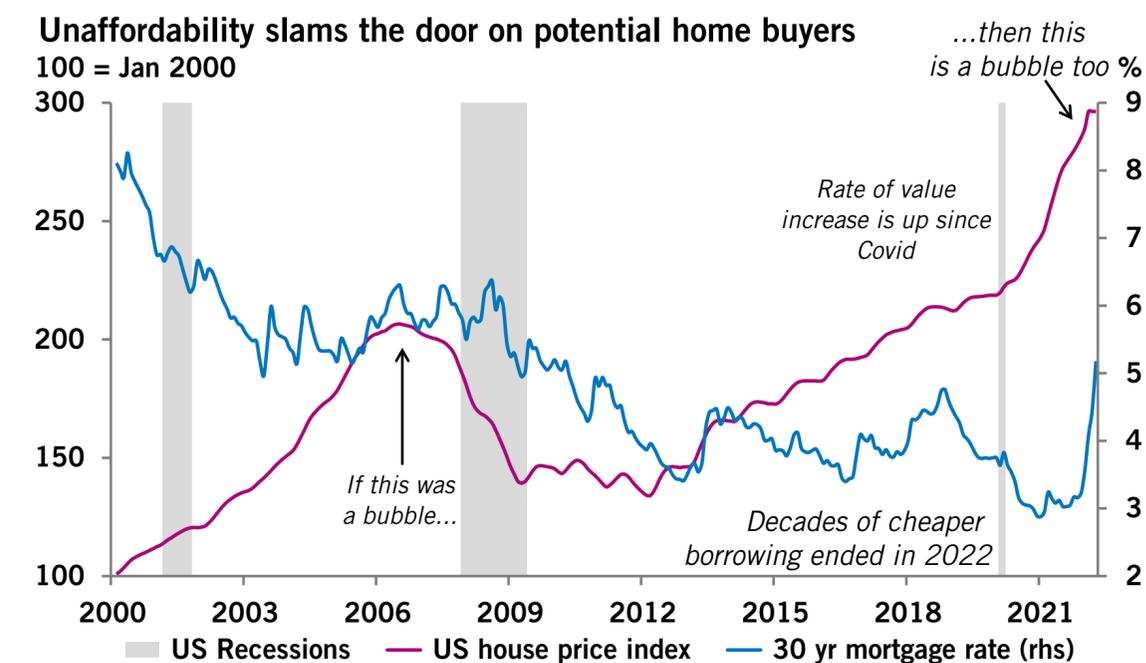
Industrial iridium and ruthenium demand at risk from construction slowdown

The construction sector uses products produced using iridium and ruthenium. Electrochemical demand for iridium and ruthenium accounts for approximately 25% and 20%, respectively, of global consumption (~70 koz and ~320 koz). A large portion of this is used in the chloralkali process for chlorine and caustic soda production. Modern processes rely on high performance electrode structures and catalytic coatings – based on iridium and ruthenium – for lower energy inputs and higher durability than alternatives. Production of polyvinyl chloride (PVC) is the biggest global consumer of chlorine. PVC demand is largely driven by economic developments as the primary end-user is the construction sector. Growth in demand is concentrated in developing countries, particularly in the Asia-Pacific region which uses 65% of global PVC production.

China's real estate market has been facing severe headwinds for more than a year, since the government clamped down on developers' excessive borrowing. Bloomberg Economics' China GDP growth forecast for 2022 has been cut from 5.7% at the start of the year to 2% at present owing to Covid restrictions. This is less than the 2.2% expansion in 2020 when China faced the first wave of Covid-19. The Chinese real estate market is so far showing no signs of improvement. Property sales by value decreased by 47% year-on-year in April – making it the largest drop since 2006. The authorities are taking steps to try to support the economy, including a cut to the baseline mortgage rate. While Shanghai is gradually being reopened, there are some restrictions in other regions, and the outlook is less positive than it was even with a recovery in activity once Covid restrictions are fully removed.

The US housing market is turning down. American new home sales fell 17% month-on-month in April to their lowest since the start of the pandemic. Affordability has sunk as 30-year mortgage rates hit 5.4% (up from 3.3% in January) and property values are at record highs. The decline may be signalling the peak of a market that has been running hot for the last two years, as effective inventory has swollen to nearly double that of the previous year. A reduction in new builds could follow.

A collapse in US construction could cut iridium and ruthenium demand via lower PVC demand. Modest growth in the electrochemical sector was expected this year as the economic recovery from the pandemic continued. However, construction slowdowns could reduce this growth, move both the iridium and ruthenium markets into larger surpluses than expected and put downward pressure on their prices.

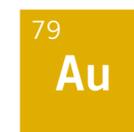


Source: SFA (Oxford), Bloomberg

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,855	0.65%	1,870	24/05/2022	1,841	26/05/2022
€/oz	1,732	-0.75%	1,753	23/05/2022	1,718	26/05/2022

Consumer gold demand in China has been hampered by lockdowns. China's net gold imports via Hong Kong fell by more than half in April from the previous month (source: Hong Kong Census and Statistics Department). Net imports stood at 5.2 tonnes in April, compared with 12.7 tonnes in March. Consumer demand in the first quarter of the year was 232 tonnes, down 19% year-on-year (source: World Gold Council), and Covid restrictions have hampered both consumers and businesses in Q2'22. Gold consumption is likely to remain suppressed in the short term as strict Covid policies will take some time to be eased. As the economy returns to normal, gold demand can be expected to pick up, but after a slow start to the year consumer demand may fall short of last year's total of 984 tonnes.

Fed's minutes confirm hawkish interest rate path. Minutes from the Federal Reserve's May meeting confirmed what the market should have been expecting – two more 50 bp hikes in June and July. However, gold ended the day lower. Target rate probabilities for the December meeting have shifted lower owing to worsening US growth forecasts and consumer sentiment. The likelihood of the target being between 2.75% and 3.00% by the end of the year has nearly halved from 51% on 19 May to 26% at the end of last week (source: CME Group). The gold price has held up very well considering that bond yields have risen sharply this year and the dollar has strengthened. Inflation is still very high, but a rising interest rate adds another headwind for gold. If the price can hold above \$1,800/oz, then perhaps gold can make further gains if inflation stays higher than anticipated for longer.

PRECIOUS APPRAISAL

30th May 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Silver



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	22.06	1.43%	22.45	27/05/2022	21.67	24/05/2022
€/oz	20.60	0.03%	20.93	27/05/2022	20.31	23/05/2022

Silver's industrial demand is under threat from slowing economic growth.

Industrial silver demand was forecast to grow by 6% this year to 540 moz (source: The Silver Institute), supported by ongoing investment in solar power, as countries increasingly turn to green energy, and the ongoing economic recovery. However, China's Covid restrictions are impacting businesses and consumers, and growth forecasts are being reduced for other regions. Demand for other industrial uses such as electronics and brazing could suffer from slower economic growth. Silver's precious side has also been of limited support as the price has underperformed gold. Having broken through support at around \$21.50/oz, the silver price rapidly rebounded above it. If it fails to stay above that level, then further downside is likely.

PRECIOUS APPRAISAL

30th May 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 **PLATINUM**
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Platinum

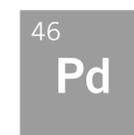
⁷⁸ Pt	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	959	0.73%	982	23/05/2022	938	25/05/2022
€/oz	896	-0.69%	921	23/05/2022	879	26/05/2022

Anglo American Platinum is the first South African PGM miner to lock into a new wage deal. A new five-year wage deal has been agreed between Amplats and the miners' unions. The deal includes a monthly increase to mineworkers' salary of ZAR1,150 in the first year, rising to ZAR1,500 per month extra by 2027. The wage rise is greater than the ZAR1,000 per month increase agreed for the current wage package in 2019. The new wage deal raises the company's labour costs by 6.6% p.a. on average. This is slightly higher than the current rate of inflation in South Africa. Amplats is the largest producer and processor of platinum in the world. Guidance for 2022 stands at 1.8 to 2.0 moz of platinum following downgrades due to a poor first quarter. This swift wage deal has reduced the potential for disruption to PGM output due to strikes. The deal sets a benchmark for negotiations with Impala Platinum, which are ongoing, and Sibanye-Stillwater, which are scheduled to begin on 1 June. Those companies represent ~2.5 moz, or 54%, of South African platinum output. The platinum market is oversupplied and a sub-\$1,000/oz price seems fair.

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM**
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Palladium



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	2,066	5.50%	2,072	24/05/2022	1,963	25/05/2022
€/oz	1,930	4.14%	1,950	25/05/2022	1,841	24/05/2022

Palladium supply to hold up in 2022. Nornickel has stated that it maintains its production guidance for the year (~2.7 moz) and released its market outlook. The company now estimates a small deficit of 100 koz for the palladium market owing to downward revisions to global light-vehicle forecasts. The most recent April auto sales data from Europe show it to be the tenth month in a row that car sales have shrunk in the region, having fallen to 685,000 passenger car units – the lowest since October 2021 at the height of the semiconductor chip crisis. Additionally, Toyota has culled 100,000 units from expected June production owing to persistent supply chain bottlenecks related to the lockdowns in China. These factors add downside risk to the demand forecasts for the year, given that auto supply chains are still highly stressed as a result of lockdowns which are only just starting to ease in Shanghai. The continued reduction in demand coupled with stable supply from Nornickel means the palladium market will likely be in a surplus this year, resulting in further downward pressure on the price.

PRECIOUS APPRAISAL

30th May 2022

01 MARKET SPOTLIGHT

02 GOLD

03 SILVER

04 PLATINUM

05 PALLADIUM

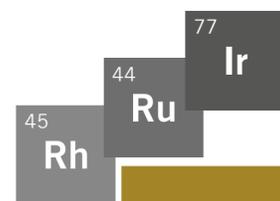
06 **RHODIUM, RUTHENIUM, IRIDIUM**

07 TRENDS AND INVESTMENTS

08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$17,050/oz	\$670/oz	\$5,250/oz
Previous Week	\$16,450/oz	\$695/oz	\$5,350/oz

Smartphone shipments tumbled in Q1'22. Shipments fell 11% year-on-year in Q1 to 311 million units (source: Canalsys). North America was the only region to record growth in sales during the period despite inflation creeping up. The second quarter is usually slower for mobile phone sales than the second half of the year which is when new phones are typically released. Supply chain bottlenecks could be a sticking point for sales in Q2, particularly in China. Consumers may also have less disposable income as living costs rise which could impact phone sales. The demand for iridium crucibles for SAW (surface acoustic wave) filter component fabrication could be impacted as smartphone manufacturers brace for a tougher holiday season by keeping production lower than previously anticipated. Leaks from Apple suggest it intends to keep production flat

year-on-year at around 220 million units, even with the launch of a major update to the iPhone platform expected later this year. Electrical demand for iridium represents about 27% of total demand. The iridium market is currently forecast to be slightly oversupplied in 2022, so any further loss of demand could weigh on the price.

The rhodium price added \$600/oz last week, while the iridium and ruthenium prices edged down.

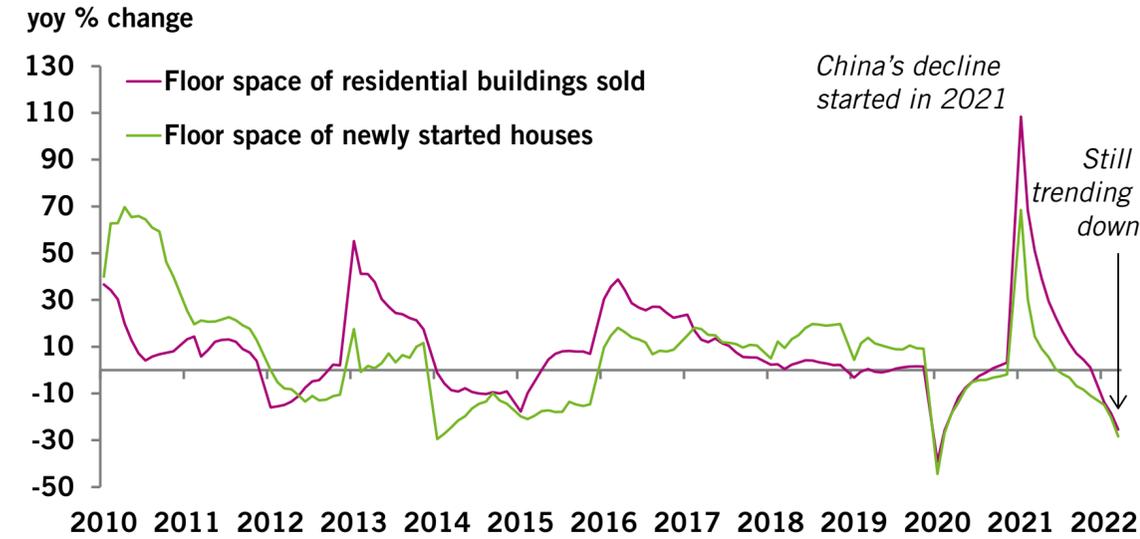
PRECIOUS APPRAISAL

30th May 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 **TRENDS AND INVESTMENTS**
- 08 ABOUT HERAEUS

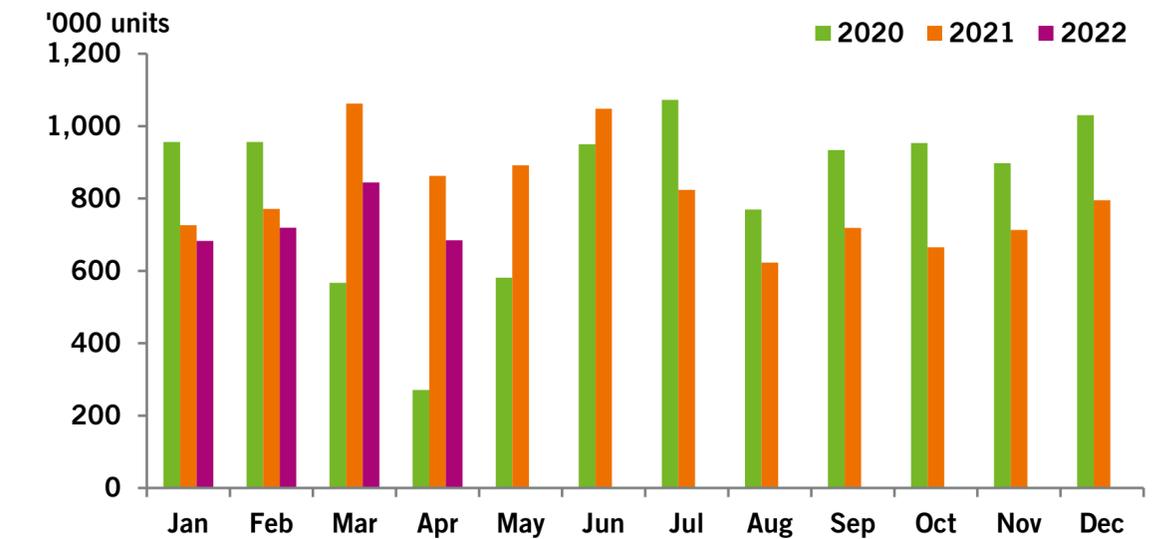
TRENDS AND INVESTMENTS

Measures of new housing construction in China



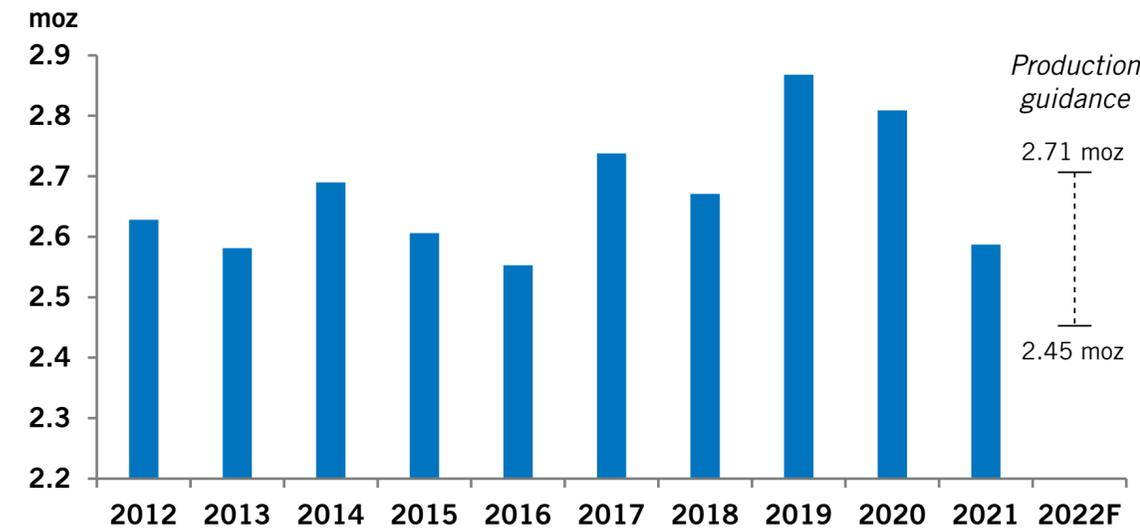
Source: SFA (Oxford), Bloomberg

New car registrations in the EU



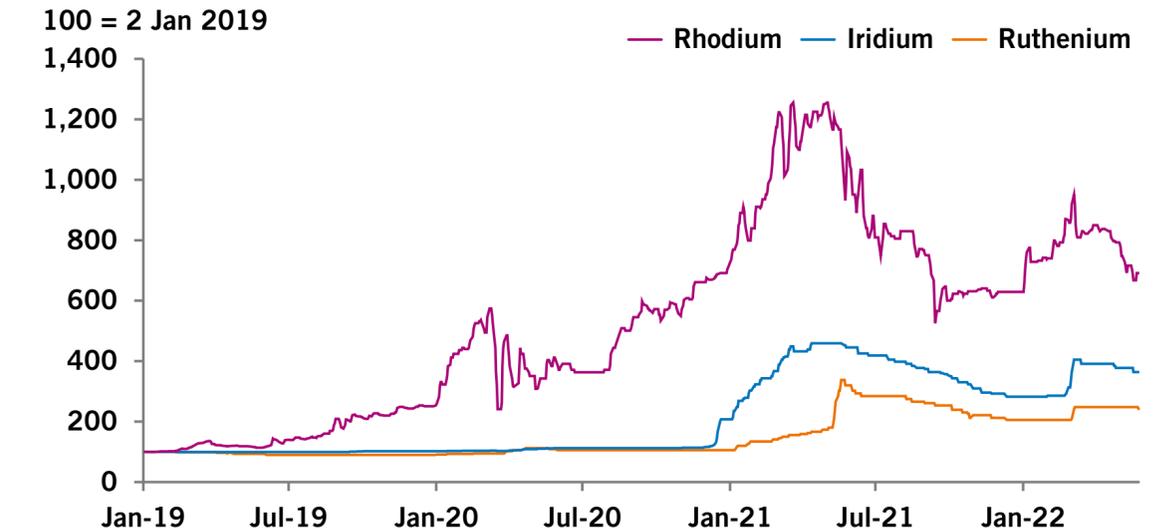
Source: SFA (Oxford), ACEA

Nornickel palladium production and guidance



Source: SFA (Oxford), Norilsk Nickel

Small PGM price performance



Source: SFA (Oxford), Heraeus Precious Metals

PRECIOUS APPRAISAL

30th May 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 **ABOUT HERAEUS**

ABOUT HERAEUS

Learn more about important trends in the precious metals markets on a weekly basis with our Heraeus Precious Appraisal. **Please subscribe: www.herae.us/trading-market-report.**

Heraeus Precious Metals

Europe, Middle East, Africa & other regions

Phone: +49 6181 35 2750

edelmetallhandel@heraeus.com

South East Asia

Phone: +852 2773 1733

tradinghk@heraeus.com

USA

Phone: +1 212 752 2180

tradingny@heraeus.com

China

Phone: +86 21 3357 5658

tradingsh@heraeus.com



Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned portfolio company. The company's roots go back to a family pharmacy started in 1660. Today, the Heraeus group includes businesses in the environmental, electronics, health and industrial applications sectors. Customers benefit from innovative technologies and solutions based on broad materials expertise and technological leadership.

Heraeus Precious Metals is a leading provider of precious metals services and products. We combine all activities related to our comprehensive expertise in the precious metals loop – from trading to precious metals products to recycling. We are one of the world's largest refiners of platinum group metals (PGMs) and a leading name in industrial precious metals trading.

The Heraeus Precious Forecast is produced in collaboration with:

SFA (Oxford) Ltd

United Kingdom

Phone: +44 1865 784366

www.sfa-oxford.com

The Oxford Science Park,
Oxford, United Kingdom, OX4 4GA



consulting analysts in tomorrow's commodities and technologies

Disclaimer

This document is being supplied to the recipient only, on the basis that the recipient is reasonably believed to be a professional market participant in the precious metals market. It is directed exclusively at entrepreneurs and especially not intended for the use of consumers.

The material contained in this document has no regard to the specific investment objectives, financial situation or particular need of any specific recipient or organisation. It is not provided as part of a contractual relationship. It is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe for any investment or as advice on the merits of making any investment.

This report has been compiled using information obtained from sources that Heraeus and SFA (Oxford) Ltd ("SFA") believe to be reliable but which they have not independently verified. Further, the analysis and opinions set out in this document, including any forward-looking statements, constitute a judgment as of the date of the document and are subject to change without notice.

There is no assurance that any forward-looking statements will materialize. Therefore, neither SFA nor Heraeus warrants the accuracy and completeness of the data and analysis contained in this document.

Heraeus and SFA assume no liability for any losses or damages of whatsoever kind, resulting from whatever cause, through the use of or reliance on any information contained in this document. However, in so far as a liability claim exists under German law, Heraeus and SFA shall have unlimited liability for willful or grossly negligent breach of duty.

Unless expressly permitted by law, no part of this document may be reproduced or distributed in any manner without written permission of Heraeus. Heraeus specifically prohibits the redistribution of this document, via the internet or otherwise, to non-professional or private investors and neither Heraeus nor SFA accepts any liability whatsoever for the actions of third parties in reliance on this document.