

Harvard Bioscience, Inc.**Conflict Minerals Report****For The Year Ended December 31, 2017**

This report for the year ended December 31, 2017 is presented to comply with Rule 13p-1 under the Securities Exchange Act of 1934, as amended (the “Rule”). The Rule was adopted by the Securities and Exchange Commission (“SEC”) to implement reporting and disclosure requirements related to conflict minerals as directed by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the “Dodd-Frank Act”). The Rule imposes certain reporting obligations on SEC registrants whose manufactured products contain conflict minerals which are necessary to the functionality or production of their products. Conflict Minerals are defined as cassiterite, columbite-tantalite, gold, wolframite, and their derivatives, which are limited to tin, tantalum, tungsten, and gold (“Conflict Minerals”) for the purposes of this report. These requirements apply to registrants whatever the geographic origin of the conflict minerals and whether or not they fund armed conflict.

As described in this report, Harvard Bioscience, Inc., a Delaware corporation (herein referred to as “Harvard Bioscience” the “Company,” “we,” “us,” or “our”) has reason to believe that some of the Conflict Minerals present in its supply chain may have originated in the Covered Countries. For purposes of this report, Covered Countries refers to the Democratic Republic of the Congo (the “DRC”) and adjoining countries, defined as any country that shares an internationally recognized border with the Democratic Republic of the Congo. We are unable with absolute assurance to determine the origin of the Conflict Minerals in our products and therefore cannot exclude the possibility that some may have originated in the Covered Countries.

1. Company Overview

This report has been prepared by management of Harvard Bioscience. The information includes the activities of all majority-owned subsidiaries as of December 31, 2017. This report does not include information on the activities of Data Sciences International, Inc. (“DSI”), which was acquired by Harvard Bioscience in January 2018.

Harvard Bioscience, Inc., a Delaware corporation, is a global developer, manufacturer and marketer of a broad range of scientific instruments and systems used to advance life science for basic research, drug discovery, clinical and environmental testing. Our products are sold to thousands of researchers in over 100 countries through our global sales organization, websites, catalogs, and through distributors including Thermo Fisher Scientific Inc., VWR and other specialized distributors. We have sales and manufacturing operations in the United States, the United Kingdom, Germany, Sweden, Spain, France, Canada, and China.

Conflict Minerals Policy

We adopted a conflict minerals policy in 2013 which is publicly available at <http://investor.harvardbioscience.com/corporate-governance.cfm>.

2. Product Description

As of December 31, 2017, our broad core product range was organized into three commercial product families: Physiology, Cell, Molecular Instruments (PCMI), Electrophysiology (Ephys), and Laboratory Products and Supplies (LPS). As of December 31, 2017, we primarily sold our products under brand names, including Harvard Apparatus, Denville Scientific, KD Scientific, Hoefer, Biochrom, BTX, Warner Instruments, MCS, HEKA, Hugo Sachs Elektronik, Panlab, Coulbourn Instruments, TBSI, and CMA Microdialysis. Following the sale of Denville Scientific, Inc. and the acquisition of DSI in 2018, our core broad product ranges will be organized into three commercial product families, consisting of PCMI, Ephys, and Data Sciences. Our products consist of instruments, consumables, and systems made up of several individual products. We manufacture our products at our locations in the United States, Germany, Sweden and Spain. Our broad and complex product range may contain conflict minerals within the following components:

- Tantalum, used in capacitors,
- Tin, used in soldered components,
- Tungsten, used in coatings, alloys, heating elements and electrodes,
- Gold, used in circuit boards, electrodes and electronic components.

3. Description of Reasonable Country of Origin Inquiry, or RCOI

We began our RCOI by completing a supplier list extraction from our Vendor List. This list was then filtered to remove:

- Service Providers/Suppliers
 - Indirect Materials Suppliers
 - Inactive Suppliers (minimum 1 year since last purchase)
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This ensures that all suppliers surveyed provided items to Harvard Bioscience that were used in final products in the year 2017. Once the filtering was completed, we populated the list with contact information and this list was then provided to Assent Compliance (“Assent”), our third party service provider, for upload to their Assent Compliance Manager SaaS system (“ACM”). It was deemed appropriate to not further filter this list based on the necessity of the presence of Conflict Minerals in the products as we could not definitively determine the presence or absence of Conflict Minerals in all parts supplied. The survey employed the RMI’s Conflict Minerals Reporting Template (the “CMRT”), version 5.0 or higher, originally developed by the Responsible Business Alliance (RBA) and The Global e-Sustainability Initiative. The CMRT allows for further scoping as they ask suppliers whether any of the Conflict Minerals are intentionally added and if they are necessary to the functionality or production of their products. Assent conducted additional analysis of the supply chain and such analysis combined with supplier feedback, allowed Assent and Harvard Bioscience to remove additional suppliers from scope of the conflict minerals regulation. The factors considered in Assent’s secondary analysis and the information provided that removed these suppliers from scope included:

- The product they supply is packaging (labels do not count as packaging).
- Parts that do not end up in the final product (this includes equipment used to make the product but is not a part of the actual product itself (i.e. Industrial equipment, computers etc.)).
- Test Labs (i.e. Providers that test the resistance or durability of a product).
- Service Providers (i.e. any supplier that provides a service but not an actual physical part).
- Any supplier who has not supplied anything to Harvard Bioscience in the last 2 years.

Assent then conducted the supplier survey portion of the RCOI.

During the supplier survey, suppliers were contacted via the ACM, a SaaS platform that enables its users to complete and track supplier communications as well as allow suppliers to upload completed CMRTs directly to the platform for assessment and management.

Non-responsive suppliers were contacted a minimum of three times by ACM and then were also managed by the Assent Compliance team in one on one communications. This includes two to three direct follow ups from that team.

Assent’s communications with suppliers included training and education on the completion of the CMRT to alleviate any remaining confusion with suppliers. All of these communications were monitored and tracked in Assent's system for future reporting and transparency.

The program continues to include automated data validation on all submitted CMRTs. The goal of data validation is to increase the accuracy of submissions and identify any contradictory answers in the CMRT.

This data validation is based on:

- Questions 1 and 2 are minimum requirements for the CMRT
 - If suppliers state (via Q1 and Q2) that their products do not contain 3TGs necessary to the function or production of said products, then no further information is required and no further data validation is completed.
- Question 3 – Do any of your 3TGs originate from the covered countries?
 - Any supplier that has any 3TGs from the covered countries, even 1 positive response from their supply chain must answer yes.
- Question 4– is 100% of the 3TG in question from a recycled source?
- Question 5 – Have you received info from all relevant 3TG Suppliers?
 - If you are not at 100%, then you can’t make definitive statements for Questions 3, 4 and 6
- Question 6 – Have you identified all your Smelters and refiners?
 - If the answer here is yes, then question 5 must be yes. This also impacts question 3.

All submitted forms are accepted and classified as valid or invalid so that data is still retained. Suppliers are contacted in regards to invalid forms and are encouraged to resubmit a valid form.

4. Due Diligence Process

4.1 Design of Due Diligence

Our due diligence measures have been designed to conform, in all material respects, with the framework in The Organization for Economic Co-operation and Development (“OECD”) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (the “OECD Guidance”) and the related Supplements for Conflict Minerals.

The Guidance identifies five steps for due diligence that should be implemented and provides guidance as to how to achieve each step. We developed our due diligence process to address each of these five steps, namely:

1. Establishing strong company management systems regarding conflict minerals;

2. Identifying and assessing risks in our supply chain;
 3. Designing and implementing a strategy to respond to identified risks in our supply chain;
 4. Utilizing independent third-party audits of supply chain diligence; and
 5. Publicly reporting on our supply chain due diligence
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We are a downstream supplier, many steps removed from the mining of 3TG. A large number of suppliers, through multiple tiers of distribution, supply the components and materials integrated into our products. Furthermore, we do not purchase raw ore or unrefined conflict minerals or make purchases from the Covered Countries. The origin of the conflict minerals cannot be determined with any certainty once the raw ores are smelted, refined and converted to ingots, bullion or other conflict mineral containing derivatives. The smelters and refiners consolidate raw ore and represent the best actors in the total supply chain to possess knowledge of the origin of the ores they procure.

The OECD Guidance specifies that the requirements for compliance should reflect a company's position in the supply chain. In particular, the OECD Guidance states that the implementation of due diligence should be tailored to a company's activities and relationships and that the nature and extent of due diligence may vary based on a company's size, products, relationships with suppliers and other factors. Due to practical difficulties associated with supply chain complexities, the OECD Guidance advises that downstream companies exercise due diligence primarily by establishing controls over their immediate suppliers. Accordingly, we rely primarily on our "tier 1" (direct) suppliers to provide information with respect to the origin of the conflict minerals contained in the components and materials supplied to us.

4.2 Management Systems

Internal Team

Harvard Bioscience has established a management system for conflict minerals. Our management system includes a committee selected by the Chief Financial Officer of the Company as well as executive-level representatives and a team of subject matter experts from relevant functions such as:

- Quality
- Purchasing
- Finance
- Engineering

The team of subject matter experts is responsible for implementing our conflict minerals compliance strategy. Senior management is briefed about the results of our due diligence efforts on a regular basis.

Control systems

As we do not typically have a direct relationship with Conflict Minerals smelters and refiners, we are engaged and actively cooperate with other major manufacturers in our sector and other sectors. Controls include, but are not limited to, the use of the CMRT as the data collection format for our suppliers, our Code of Business Conduct and Ethics which outlines certain expected behaviors for all Harvard Bioscience employees. In addition, we rely on our direct suppliers to provide information on the origin of the Conflict Minerals contained in components and materials supplied to us – including sources of Conflict Minerals that are supplied to them from lower tier suppliers.

Supplier Engagement

With respect to the OECD requirement to strengthen engagement with suppliers, we have, through Assent, provided education on the Conflict Minerals regulation as well as the expectations of the law and for a continued business relationship. This year, we put a stronger emphasis on supplier education and training. To accomplish this, we utilized Assent's learning management system, Assent University, and provided all in-scope suppliers access to their Conflict Minerals training course. This training is tracked and evaluated based on completion. All suppliers are encouraged to complete all modules within this course.

Grievance Mechanism

Various communication channels exist to serve as grievance mechanisms for early-warning risk awareness. We have multiple longstanding grievance mechanisms whereby employees (internal) and suppliers (external) can report violations of our policies. This includes, but is not limited to our whistleblower hotline that is part of our Code of Business Conduct and Ethics policy located on our website at <http://investor.harvardbioscience.com/corporate-governance.cfm>.

Maintain Records

Our existing policy related to relevant documentation of our conflict mineral compliance process requires that documentation will be retained for a period of at least five years. We store all of the information and findings from this process in a database that can be audited by internal or external parties.

4.3 Identify and assess risk in the supply chain

Because of the complexity of our products, and the depth, breadth, and constant evolution of our supply chain, it is difficult to identify actors upstream from our direct suppliers. Risks are identified automatically in ACM based on criteria established for supplier responses in the Conflict Policy document and Management System.

All of the information and findings from this process are stored in a database that can be audited by internal or external parties.

Certain of the responses to the surveys included the names of facilities listed by the suppliers as smelters or refiners. We compared, via Assent, each facility listed in the responses to the lists of smelters and refiners maintained by the RMI to verify the existence of the facility and to determine whether the facility has met the requirements of the RMI's Responsible Minerals Assurance Process (RMAP) and is considered Compliant to that protocol.

Each facility that meets the RMI definition of a smelter or refiner of a 3TG mineral is assigned a risk of high, medium or low based on 3 scoring criteria:

1. Geographic proximity to the DRC and covered countries;
2. Responsible Minerals Assurance Process (RMAP) audit status;
3. Known or plausible evidence of unethical or conflict sourcing.

Based on this criteria, certain facilities have been identified as being of highest concern to the supply chain. When these facilities were reported on a CMRT by one of the suppliers surveyed, risk mitigation activities were initiated. Through Assent, submissions that include any of the above facilities immediately produce a receipt instructing the supplier to take their own risk mitigation actions, including submission of a product specific CMRT to better identify the connection to products that they supply to Harvard Bioscience, and escalating up to removal of these high risk smelters from their supply chain.

As per the OECD Due Diligence Guidance, risk mitigation will depend on the supplier's specific context. Suppliers are given clear performance objectives within reasonable timeframes with the ultimate goal of progressive elimination of these risks from the supply chain.

In addition, suppliers are guided to the Assent University learning platform to engage in educational materials on mitigating the risk of smelters or refiners on the supply chain.

If any smelter or refiner is not recognized by the RMI, Assent conducts outreach and research to gain more information about whether they are a smelter or a refiner, sourcing practices, location, and country of origin. Additionally, if any smelter is not certified conflict-free, Assent conducts outreach providing education on the RMAP and encouraging them to join this program.

Additionally, suppliers are evaluated on program strength (further assisting in identifying risk in the supply chain). Many companies continue to be in the middle of the process and still have “unknown” as some of the answers. It has been decided that penalizing or failing them for working through the process is likely not the best approach for the initial years of compliance, it does not meet the goals or spirit of the Rule, however evaluating and tracking the strength of the program does meet the OECD Due Diligence Guidelines and can assist in making key risk mitigation decisions as the program progresses. The criteria used to evaluate the strength of the program are:

A. Have you established a conflict minerals sourcing policy?

E. Have you implemented due diligence measures for conflict-free sourcing?

G. Do you review due diligence information received from your suppliers against your company’s expectations?

H. Does your review process include corrective action management?

When suppliers meet or exceed those criteria (“Yes” to at least A, E, G, H), they are deemed to have a strong program. When suppliers do not meet those criteria, they are deemed to have a weak program.

We believe that the inquiries and investigations described above represent a reasonable effort to determine the mines or locations of origin of the Conflict Minerals in our Covered Products, including (1) seeking information about Conflict Minerals smelters and refiners in our supply chain through requesting that our suppliers complete the CMRT, (2) verifying those smelters and refiners with the expanding RMI lists, (3) conducting the due diligence review, and (4) obtaining additional documentation and verification, as applicable.

4.4 Design and Implement a Strategy to Respond to Risks

In response to this risk assessment, Harvard Bioscience has an approved risk management plan, through which the conflict minerals program is implemented, managed and monitored.

As part of our risk management plan, to ensure suppliers understand our expectations we have provided both video, recorded training and documented instructions through Assent. As the program progresses, contacts via email and phone by Harvard Bioscience procurement team members will be completed as an escalation to ensure the importance of a response via CMRTs to Assent and the required cooperation for compliance to the Conflict Minerals rules will be emphasized.

As described in our conflict minerals policy, we engage any of our suppliers whom we have reason to believe are supplying us with Conflict Minerals from sources that may support conflict in the Covered Countries to establish an alternative source of Conflict Minerals that does not support such conflict, as provided in the OECD guidance. We have found no instances where it was necessary to terminate a contract or find a replacement supplier.

4.5 Carry out Independent Third Party Audit of Supply Chain Due Diligence at Identified Points in the Supply Chain

We do not typically have a direct relationship with smelters and refiners and therefore do not perform or direct audits of these entities. However, we will rely on publicly available third party assurances and certifications, for example, through the RMI’s Responsible Minerals Assurance Process “RMAP”.

4.6 Report annually on supply chain due diligence

We report annually on our supply chain due diligence by filing a Form SD and a Conflict Minerals Report with the SEC. Our Form SD and Conflict Minerals Report can be found on the Corporate Governance page of our website: <http://investor.harvardbioscience.com/corporate-governance.cfm>.

5. Due Diligence Results

Survey Responses

We are actively surveying our supplier chain. This year we surveyed 1358 suppliers. Of those suppliers we received CMRTs from 513 suppliers. We review the responses against criteria developed to determine whether further engagement with our suppliers is required. These criteria included untimely or incomplete responses as well as inconsistencies within the data reported in the template. We, through the assistance of Assent, have worked with these suppliers to provide revised responses. All final CMRT submissions were reviewed and validated to ensure no inaccuracies or gaps in data were found. At the end of our campaigning, 19 suppliers were unable to correct their CMRT and as such, are still listed as invalid submissions.

Smelters or Refiners

The information that we received from a majority of our Applicable Suppliers was at their company-wide level. Thus, the smelters or refiners identified by our Applicable Suppliers contained in the tables below may contain smelters or refiners that processed conflict minerals that our Applicable Suppliers supplied to their other customers, but not to us. As a result, we are unable to conclusively determine whether the smelters or refiners included in the tables below were used to process the conflict minerals necessary to the functionality or production of our products during 2017. Because of this uncertainty, we are also unable to conclusively determine whether each of the countries of origin listed above were the country of origin of conflict minerals in our products during 2017, and therefore also unable to conclusively determine the source and chain of custody of those conflict minerals. In addition, the information that we receive from our Applicable Suppliers may yield inaccurate or incomplete information because they may not have received accurate and complete conflict minerals information from all of the suppliers in their own supply chain. As we are not a member of the RMI, we also do not have access to audit reports or detailed findings of the third-party audits conducted as part of the RMI's RMAP or the LBMA Responsible Gold Programme and, as a result, are not responsible for the quality of these audits or the audit findings.

Our third-party service provider compared the facilities listed in the responses in the CMRT to the list of smelters maintained by the RMI, and confirmed that the name was listed by RMI as a legitimate smelter. As of May 1, 2018, we have validated in this manner that 322 smelters or refiners provided in our supplier CMRTs are included on these lists. The facilities determined to be legitimate smelters or refiners based on this comparison to the RMI-maintained list have also been compared to the RMI's RMAP list. Based on this comparison, we are aware of 258 compliant smelters or refiners, 11 smelters or refiners that have begun the process and are deemed as active in the RMAP but have not yet been validated as Conflict-Free and 54 smelters or refiners that are not enrolled in the process to become compliant to the RMAP. Confirmed smelter or refiner sourcing is not generally available through public information sources related to the smelter or refiner however Attachment A does include an aggregate country list of known smelter or refiner sourcing countries. Despite the additional smelter information obtained from these suppliers, in most cases information has been provided on a company or division level, rather than on a component level. Therefore, we cannot yet ascertain whether the smelters identified by our suppliers are related to any parts or components actually provided to us by the suppliers. Attachment A lists the smelters and refiners that the suppliers we surveyed reported as being in their supply chains. We have not included in Attachment A any smelters or refiners that we have not been able to validate. Attachment A also includes the facility RMI audit status.

Efforts to determine mine or location of origin

As noted above, the current efforts focus on gathering smelter information via the CMRT reporting template and, as the program progresses, requiring full completion of all necessary smelter identification information which will enable the validation and disclosure of the smelters as well as the tracing of the Conflict Minerals to their location of origin. Seeking information about Conflict Minerals smelters and refiners in our supply chain represents the most reasonable effort we can make to determine the mines or locations of origin of the Conflict Minerals in our supply chain.

6. Steps to improve future due diligence and to mitigate risk

We intend to take the following steps to improve the due diligence conducted to further mitigate any risk that the necessary Conflict Minerals in our products could benefit armed groups in the DRC or adjoining countries:

- Include a conflict minerals flow-down clause in new or renewed supplier contracts.
- Engage with suppliers and direct them to training resources to attempt to increase the response rate and improve the content of the supplier survey responses.
- Suppliers will also be requested to inform Harvard Bioscience of the correlation between these smelters and the products and parts they supply to Harvard Bioscience
- Engage any of our suppliers found to be supplying us with Conflict Minerals from sources that support conflict in the DRC or any adjoining country to establish an alternative source of Conflict Minerals that does not support such conflict.

ATTACHMENT A

Metal	Standard Smelter Name	Smelter ID	RMI Audit Status
Gold	Abington Reldan Metals, LLC	CID002708	Not Enrolled
Gold	Advanced Chemical Company	CID000015	Conformant
Gold	African Gold Refinery	CID003185	Not Enrolled
Gold	Aida Chemical Industries Co., Ltd.	CID000019	Conformant
Gold	Al Etihad Gold LLC	CID002560	Conformant
Gold	Allgemeine Gold-und Silberscheideanstalt A.G.	CID000035	Conformant

Gold	Almalyk Mining and Metallurgical Complex (AMMC)	CID000041	Conformant
Gold	AngloGold Ashanti Córrego do Sítio Mineração	CID000058	Conformant
Gold	Argor-Heraeus S.A.	CID000077	Conformant
Gold	Asahi Pretec Corp.	CID000082	Conformant
Gold	Asahi Refining Canada Ltd.	CID000924	Conformant
Gold	Asahi Refining USA Inc.	CID000920	Conformant
Gold	Asaka Riken Co., Ltd.	CID000090	Conformant
Gold	Atasay Kuyumculuk Sanayi Ve Ticaret A.S.	CID000103	Not Enrolled
Gold	AU Traders and Refiners	CID002850	Conformant
Gold	Aurubis AG	CID000113	Conformant
Gold	Bangalore Refinery	CID002863	Active
Gold	Bangko Sentral ng Pilipinas (Central Bank of the Philippines)	CID000128	Conformant
Gold	Boliden AB	CID000157	Conformant
Gold	C. Hafner GmbH + Co. KG	CID000176	Conformant
Gold	Caridad	CID000180	Not Enrolled
Gold	CCR Refinery - Glencore Canada Corporation	CID000185	Conformant
Gold	Cendres + Métaux S.A.	CID000189	Conformant
Gold	Chimet S.p.A.	CID000233	Conformant
Gold	Chugai Mining	CID000264	Not Enrolled
Gold	Daejin Indus Co., Ltd.	CID000328	Conformant
Gold	Daye Non-Ferrous Metals Mining Ltd.	CID000343	Not Enrolled
Gold	Degussa Sonne / Mond Goldhandel GmbH	CID002867	Not Enrolled
Gold	DODUCO Contacts and Refining GmbH	CID000362	Conformant
Gold	Dowa	CID000401	Conformant
Gold	DS PRETECH Co., Ltd.	CID003195	Active
Gold	DSC (Do Sung Corporation)	CID000359	Conformant

Gold	Eco-System Recycling Co., Ltd.	CID000425	Conformant
Gold	Elemetal Refining, LLC	CID001322	Not Enrolled
Gold	Emirates Gold DMCC	CID002561	Conformant
Gold	Fidelity Printers and Refiners Ltd.	CID002515	Not Enrolled
Gold	GCC Gujrat Gold Centre Pvt. Ltd.	CID002852	Not Enrolled
Gold	Geib Refining Corporation	CID002459	Conformant
Gold	Gold Refinery of Zijin Mining Group Co., Ltd.	CID002243	Conformant
Gold	Great Wall Precious Metals Co., Ltd. of CBPM	CID001909	Not Enrolled
Gold	Guangdong Jinding Gold Limited	CID002312	Not Enrolled
Gold	Guoda Safina High-Tech Environmental Refinery Co., Ltd.	CID000651	Not Enrolled
Gold	Hangzhou Fuchunjiang Smelting Co., Ltd.	CID000671	Not Enrolled
Gold	HeeSung	CID000689	Conformant
Gold	Heimerle + Meule GmbH	CID000694	Conformant
Gold	Heraeus Metals Hong Kong Ltd.	CID000707	Conformant
Gold	Heraeus Precious Metals GmbH & Co. KG	CID000711	Conformant
Gold	Hunan Chenzhou Mining Co., Ltd.	CID000767	Not Enrolled
Gold	Hwasung CJ Co., Ltd.	CID000778	Not Enrolled
Gold	Inner Mongolia Qiankun Gold and Silver Refinery Share Co., Ltd.	CID000801	Conformant
Gold	Ishifuku Metal Industry Co., Ltd.	CID000807	Conformant
Gold	Istanbul Gold Refinery	CID000814	Conformant
Gold	Italpreziosi	CID002765	Conformant
Gold	Japan Mint	CID000823	Conformant
Gold	Jiangxi Copper Co., Ltd.	CID000855	Conformant
Gold	JSC Ekaterinburg Non-Ferrous Metal Processing Plant	CID000927	Conformant
Gold	JSC Uralelectromed	CID000929	Conformant
Gold	JX Nippon Mining & Metals Co., Ltd.	CID000937	Conformant

Gold	Kaloti Precious Metals	CID002563	Not Enrolled
Gold	Kazakhmys Smelting LLC	CID000956	Not Enrolled
Gold	Kazzinc	CID000957	Conformant
Gold	Kennecott Utah Copper LLC	CID000969	Conformant
Gold	KGHM Polska Miedz Spolka Akcyjna	CID002511	Active
Gold	Kojima Chemicals Co., Ltd.	CID000981	Conformant
Gold	Korea Zinc Co., Ltd.	CID002605	Conformant
Gold	Kyrgyzaltyn JSC	CID001029	Conformant
Gold	Kyshtym Copper-Electrolytic Plant ZAO	CID002865	Not Enrolled
Gold	L'azurde Company For Jewelry	CID001032	Not Enrolled
Gold	Lingbao Gold Co., Ltd.	CID001056	Not Enrolled
Gold	Lingbao Jinyuan Tonghui Refinery Co., Ltd.	CID001058	Not Enrolled
Gold	L'Orfebvre S.A.	CID002762	Active
Gold	LS-NIKKO Copper Inc.	CID001078	Conformant
Gold	Luoyang Zijin Yinhui Gold Refinery Co., Ltd.	CID001093	Not Enrolled
Gold	Marsam Metals	CID002606	Conformant
Gold	Materion	CID001113	Conformant
Gold	Matsuda Sangyo Co., Ltd.	CID001119	Conformant
Gold	Metalor Technologies (Hong Kong) Ltd.	CID001149	Conformant
Gold	Metalor Technologies (Singapore) Pte., Ltd.	CID001152	Conformant
Gold	Metalor Technologies (Suzhou) Ltd.	CID001147	Conformant
Gold	Metalor Technologies S.A.	CID001153	Conformant
Gold	Metalor USA Refining Corporation	CID001157	Conformant
Gold	Metalúrgica Met-Mex Peñoles S.A. De C.V.	CID001161	Conformant
Gold	Mitsubishi Materials Corporation	CID001188	Conformant
Gold	Mitsui Mining and Smelting Co., Ltd.	CID001193	Conformant

Gold	MMTC-PAMP India Pvt., Ltd.	CID002509	Conformant
Gold	Modeltech Sdn Bhd	CID002857	Active
Gold	Morris and Watson	CID002282	Not Enrolled
Gold	Morris and Watson Gold Coast	CID002866	Not Enrolled
Gold	Moscow Special Alloys Processing Plant	CID001204	Conformant
Gold	Nadir Metal Rafineri San. Ve Tic. A.Ş.	CID001220	Conformant
Gold	Navoi Mining and Metallurgical Combinat	CID001236	Not Enrolled
Gold	NH Recytech Company	CID003189	Active
Gold	Nihon Material Co., Ltd.	CID001259	Conformant
Gold	Ögussa Österreichische Gold- und Silber-Scheideanstalt GmbH	CID002779	Conformant
Gold	Ohura Precious Metal Industry Co., Ltd.	CID001325	Conformant
Gold	OJSC "The Gulidov Krasnoyarsk Non-Ferrous Metals Plant" (OJSC Krastsvetmet)	CID001326	Conformant
Gold	OJSC Novosibirsk Refinery	CID000493	Conformant
Gold	PAMP S.A.	CID001352	Conformant
Gold	Pease & Curren	CID002872	Not Enrolled
Gold	Penglai Penggang Gold Industry Co., Ltd.	CID001362	Not Enrolled
Gold	Planta Recuperadora de Metales SpA	CID002919	Conformant
Gold	Prioksky Plant of Non-Ferrous Metals	CID001386	Conformant
Gold	PT Aneka Tambang (Persero) Tbk	CID001397	Conformant
Gold	PX Précinox S.A.	CID001498	Conformant
Gold	Rand Refinery (Pty) Ltd.	CID001512	Conformant
Gold	Refinery of Seemine Gold Co., Ltd.	CID000522	Not Enrolled
Gold	Remondis Argentia B.V.	CID002582	Active
Gold	Republic Metals Corporation	CID002510	Conformant
Gold	Royal Canadian Mint	CID001534	Conformant
Gold	SAAMP	CID002761	Conformant

Gold	Sabin Metal Corp.	CID001546	Not Enrolled
Gold	Safimet S.p.A	CID002973	Conformant
Gold	SAFINA A.S.	CID002290	Active
Gold	Sai Refinery	CID002853	Not Enrolled
Gold	Samduck Precious Metals	CID001555	Conformant
Gold	SAMWON Metals Corp.	CID001562	Not Enrolled
Gold	SAXONIA Edelmetalle GmbH	CID002777	Conformant
Gold	Schone Edelmetaal B.V.	CID001573	Conformant
Gold	SEMPSA Joyería Platería S.A.	CID001585	Conformant
Gold	Shandong Tiancheng Biological Gold Industrial Co., Ltd.	CID001619	Not Enrolled
Gold	Shandong Zhaojin Gold & Silver Refinery Co., Ltd.	CID001622	Conformant
Gold	Sichuan Tianze Precious Metals Co., Ltd.	CID001736	Conformant
Gold	Singway Technology Co., Ltd.	CID002516	Conformant
Gold	SOE Shyolkovsky Factory of Secondary Precious Metals	CID001756	Conformant
Gold	Solar Applied Materials Technology Corp.	CID001761	Conformant
Gold	State Research Institute Center for Physical Sciences and Technology	CID003153	Not Enrolled
Gold	Sudan Gold Refinery	CID002567	Not Enrolled
Gold	Sumitomo Metal Mining Co., Ltd.	CID001798	Conformant
Gold	SungEel HiTech	CID002918	Conformant
Gold	T.C.A S.p.A	CID002580	Conformant
Gold	Tanaka Kikinzoku Kogyo K.K.	CID001875	Conformant
Gold	The Refinery of Shandong Gold Mining Co., Ltd.	CID001916	Conformant
Gold	Tokuriki Honten Co., Ltd.	CID001938	Conformant
Gold	Tongling Nonferrous Metals Group Co., Ltd.	CID001947	Not Enrolled
Gold	Tony Goetz NV	CID002587	Not Enrolled
Gold	TOO Tau-Ken-Altyn	CID002615	Not Enrolled

Gold	Torecom	CID001955	Conformant
Gold	Umicore Brasil Ltda.	CID001977	Conformant
Gold	Umicore Precious Metals Thailand	CID002314	Conformant
Gold	Umicore S.A. Business Unit Precious Metals Refining	CID001980	Conformant
Gold	United Precious Metal Refining, Inc.	CID001993	Conformant
Gold	Universal Precious Metals Refining Zambia	CID002854	Not Enrolled
Gold	Valcambi S.A.	CID002003	Conformant
Gold	Western Australian Mint trading as The Perth Mint	CID002030	Conformant
Gold	WIELAND Edelmetalle GmbH	CID002778	Conformant
Gold	Yamamoto Precious Metal Co., Ltd.	CID002100	Conformant
Gold	Yokohama Metal Co., Ltd.	CID002129	Conformant
Gold	Yunnan Copper Industry Co., Ltd.	CID000197	Not Enrolled
Gold	Zhongyuan Gold Smelter of Zhongjin Gold Corporation	CID002224	Conformant
Tantalum	Asaka Riken Co., Ltd.	CID000092	Conformant
Tantalum	Changsha South Tantalum Niobium Co., Ltd.	CID000211	Conformant
Tantalum	D Block Metals, LLC	CID002504	Conformant
Tantalum	Duoluoshan	CID000410	Not Enrolled
Tantalum	Exotech Inc.	CID000456	Conformant
Tantalum	F&X Electro-Materials Ltd.	CID000460	Conformant
Tantalum	FIR Metals & Resource Ltd.	CID002505	Conformant
Tantalum	Global Advanced Metals Aizu	CID002558	Conformant
Tantalum	Global Advanced Metals Boyertown	CID002557	Conformant
Tantalum	Guangdong Rising Rare Metals-EO Materials Ltd.	CID000291	Conformant
Tantalum	Guangdong Zhiyuan New Material Co., Ltd.	CID000616	Conformant
Tantalum	H.C. Starck Co., Ltd.	CID002544	Conformant
Tantalum	H.C. Starck Hermsdorf GmbH	CID002547	Conformant

Tantalum	H.C. Starck Inc.	CID002548	Conformant
Tantalum	H.C. Starck Ltd.	CID002549	Conformant
Tantalum	H.C. Starck Smelting GmbH & Co. KG	CID002550	Conformant
Tantalum	H.C. Starck Tantalum and Niobium GmbH	CID002545	Conformant
Tantalum	Hengyang King Xing Lifeng New Materials Co., Ltd.	CID002492	Conformant
Tantalum	Jiangxi Dinghai Tantalum & Niobium Co., Ltd.	CID002512	Conformant
Tantalum	Jiangxi Tuohong New Raw Material	CID002842	Conformant
Tantalum	Jiujiang Janny New Material Co., Ltd.	CID003191	Conformant
Tantalum	JiuJiang JinXin Nonferrous Metals Co., Ltd.	CID000914	Conformant
Tantalum	Jiujiang Tanbre Co., Ltd.	CID000917	Conformant
Tantalum	Jiujiang Zhongao Tantalum & Niobium Co., Ltd.	CID002506	Conformant
Tantalum	KEMET Blue Metals	CID002539	Conformant
Tantalum	KEMET Blue Powder	CID002568	Conformant
Tantalum	King-Tan Tantalum Industry Ltd.	CID000973	Conformant
Tantalum	LSM Brasil S.A.	CID001076	Conformant
Tantalum	Metallurgical Products India Pvt., Ltd.	CID001163	Conformant
Tantalum	Mineracao Taboca S.A.	CID001175	Conformant
Tantalum	Mitsui Mining and Smelting Co., Ltd.	CID001192	Conformant
Tantalum	Ningxia Orient Tantalum Industry Co., Ltd.	CID001277	Conformant
Tantalum	NPM Silmet AS	CID001200	Conformant
Tantalum	Power Resources Ltd.	CID002847	Conformant
Tantalum	QuantumClean	CID001508	Conformant
Tantalum	Resind Industria e Comercio Ltda.	CID002707	Conformant
Tantalum	RFH Tantalum Smeltry Co., Ltd.	CID001522	Conformant
Tantalum	Solikamsk Magnesium Works OAO	CID001769	Conformant
Tantalum	Taki Chemicals	CID001869	Conformant

Tantalum	Telex Metals	CID001891	Conformant
Tantalum	Ulba Metallurgical Plant JSC	CID001969	Conformant
Tantalum	XinXing HaoRong Electronic Material Co., Ltd.	CID002508	Conformant
Tantalum	Yichun Jin Yang Rare Metal Co., Ltd.	CID002307	Conformant
Tin	Alpha	CID000292	Conformant
Tin	An Vinh Joint Stock Mineral Processing Company	CID002703	Not Enrolled
Tin	Chenzhou Yunxiang Mining and Metallurgy Co., Ltd.	CID000228	Conformant
Tin	Chifeng Dajingzi Tin Industry Co., Ltd.	CID003190	Active
Tin	China Tin Group Co., Ltd.	CID001070	Conformant
Tin	CNMC (Guangxi) PGMA Co., Ltd.	CID000278	Not Enrolled
Tin	CV Ayi Jaya	CID002570	Conformant
Tin	CV Dua Sekawan	CID002592	Conformant
Tin	CV Gita Pesona	CID000306	Conformant
Tin	CV Tiga Sekawan	CID002593	Conformant
Tin	CV United Smelting	CID000315	Conformant
Tin	CV Venus Inti Perkasa	CID002455	Conformant
Tin	Dowa	CID000402	Conformant
Tin	Electro-Mechanical Facility of the Cao Bang Minerals & Metallurgy Joint Stock Company	CID002572	Not Enrolled
Tin	EM Vinto	CID000438	Conformant
Tin	Estanho de Rondônia S.A.	CID000448	Not Enrolled
Tin	Fenix Metals	CID000468	Conformant
Tin	Gejiu Fengming Metallurgy Chemical Plant	CID002848	Conformant
Tin	Gejiu Jinye Mineral Company	CID002859	Conformant
Tin	Gejiu Kai Meng Industry and Trade LLC	CID000942	Conformant
Tin	Gejiu Non-Ferrous Metal Processing Co., Ltd.	CID000538	Conformant
Tin	Gejiu Yunxin Nonferrous Electrolysis Co., Ltd.	CID001908	Conformant

Tin	Gejiu Zili Mining And Metallurgy Co., Ltd.	CID000555	Not Enrolled
Tin	Guangdong Hanhe Non-ferrous Metal Limited Company	CID003116	Conformant
Tin	Guanyang Guida Nonferrous Metal Smelting Plant	CID002849	Conformant
Tin	HuiChang Hill Tin Industry Co., Ltd.	CID002844	Conformant
Tin	Huichang Jinshunda Tin Co., Ltd.	CID000760	Conformant
Tin	Jiangxi Ketai Advanced Material Co., Ltd.	CID000244	Conformant
Tin	Jiangxi New Nanshan Technology Ltd.	CID001231	Conformant
Tin	Magnu's Minerai's Metais e Ligas Ltda.	CID002468	Conformant
Tin	Malaysia Smelting Corporation (MSC)	CID001105	Conformant
Tin	Melt Metais e Ligas S.A.	CID002500	Conformant
Tin	Metallic Resources, Inc.	CID001142	Conformant
Tin	Metallo Belgium N.V.	CID002773	Conformant
Tin	Metallo Spain S.L.U.	CID002774	Conformant
Tin	Mineracao Taboca S.A.	CID001173	Conformant
Tin	Minsur	CID001182	Conformant
Tin	Mitsubishi Materials Corporation	CID001191	Conformant
Tin	Modeltech Sdn Bhd	CID002858	Active
Tin	Nghe Tinh Non-Ferrous Metals Joint Stock Company	CID002573	Not Enrolled
Tin	O.M. Manufacturing (Thailand) Co., Ltd.	CID001314	Conformant
Tin	O.M. Manufacturing Philippines, Inc.	CID002517	Conformant
Tin	Operaciones Metalurgical S.A.	CID001337	Conformant
Tin	Pongpipat Company Limited	CID003208	Not Enrolled
Tin	PT Aries Kencana Sejahtera	CID000309	Conformant
Tin	PT Artha Cipta Langgeng	CID001399	Conformant
Tin	PT ATD Makmur Mandiri Jaya	CID002503	Conformant
Tin	PT Babel Inti Perkasa	CID001402	Conformant

Tin	PT Bangka Prima Tin	CID002776	Conformant
Tin	PT Bangka Serumpun	CID003205	Conformant
Tin	PT Bangka Tin Industry	CID001419	Conformant
Tin	PT Belitung Industri Sejahtera	CID001421	Conformant
Tin	PT Bukit Timah	CID001428	Conformant
Tin	PT DS Jaya Abadi	CID001434	Conformant
Tin	PT Eunindo Usaha Mandiri	CID001438	Conformant
Tin	PT Inti Stania Prima	CID002530	Conformant
Tin	PT Karimun Mining	CID001448	Conformant
Tin	PT Kijang Jaya Mandiri	CID002829	Conformant
Tin	PT Lautan Harmonis Sejahtera	CID002870	Conformant
Tin	PT Menara Cipta Mulia	CID002835	Conformant
Tin	PT Mitra Stania Prima	CID001453	Conformant
Tin	PT O.M. Indonesia	CID002757	Conformant
Tin	PT Panca Mega Persada	CID001457	Conformant
Tin	PT Premium Tin Indonesia	CID000313	Conformant
Tin	PT Prima Timah Utama	CID001458	Conformant
Tin	PT Refined Bangka Tin	CID001460	Conformant
Tin	PT Sariwiguna Binasentosa	CID001463	Conformant
Tin	PT Stanindo Inti Perkasa	CID001468	Conformant
Tin	PT Sukses Inti Makmur	CID002816	Conformant
Tin	PT Sumber Jaya Indah	CID001471	Conformant
Tin	PT Timah (Persero) Tbk Kundur	CID001477	Conformant
Tin	PT Timah (Persero) Tbk Mentok	CID001482	Conformant
Tin	PT Tinindo Inter Nusa	CID001490	Conformant
Tin	PT Tommy Utama	CID001493	Conformant

Tin	Resind Industria e Comercio Ltda.	CID002706	Conformant
Tin	Rui Da Hung	CID001539	Conformant
Tin	Soft Metais Ltda.	CID001758	Conformant
Tin	Super Ligas	CID002756	Not Enrolled
Tin	Thaisarco	CID001898	Conformant
Tin	Tuyen Quang Non-Ferrous Metals Joint Stock Company	CID002574	Not Enrolled
Tin	White Solder Metalurgia e Mineraçao Ltda.	CID002036	Conformant
Tin	Yunnan Chengfeng Non-ferrous Metals Co., Ltd.	CID002158	Conformant
Tin	Yunnan Tin Company Limited	CID002180	Conformant
Tungsten	A.L.M.T. TUNGSTEN Corp.	CID000004	Conformant
Tungsten	ACL Metais Eireli	CID002833	Conformant
Tungsten	Asia Tungsten Products Vietnam Ltd.	CID002502	Conformant
Tungsten	Chenzhou Diamond Tungsten Products Co., Ltd.	CID002513	Conformant
Tungsten	Chongyi Zhangyuan Tungsten Co., Ltd.	CID000258	Conformant
Tungsten	Fujian Jinxin Tungsten Co., Ltd.	CID000499	Conformant
Tungsten	Ganzhou Haichuang Tungsten Co., Ltd.	CID002645	Active
Tungsten	Ganzhou Huaxing Tungsten Products Co., Ltd.	CID000875	Conformant
Tungsten	Ganzhou Jiangwu Ferrotungsten Co., Ltd.	CID002315	Conformant
Tungsten	Ganzhou Seadragon W & Mo Co., Ltd.	CID002494	Conformant
Tungsten	Ganzhou Yatai Tungsten Co., Ltd.	CID002536	Not Enrolled
Tungsten	Global Tungsten & Powders Corp.	CID000568	Conformant
Tungsten	Guangdong Xianglu Tungsten Co., Ltd.	CID000218	Conformant
Tungsten	H.C. Starck Smelting GmbH & Co.KG	CID002542	Conformant
Tungsten	H.C. Starck Tungsten GmbH	CID002541	Conformant
Tungsten	Hunan Chenzhou Mining Co., Ltd.	CID000766	Conformant
Tungsten	Hunan Chuangda Vanadium Tungsten Co., Ltd. Wuji	CID002579	Conformant

Tungsten	Hunan Chunchang Nonferrous Metals Co., Ltd.	CID000769	Conformant
Tungsten	Hunan Litian Tungsten Industry Co., Ltd.	CID003182	Conformant
Tungsten	Hydrometallurg, JSC	CID002649	Conformant
Tungsten	Japan New Metals Co., Ltd.	CID000825	Conformant
Tungsten	Jiangwu H.C. Starck Tungsten Products Co., Ltd.	CID002551	Conformant
Tungsten	Jiangxi Dayu Longxintai Tungsten Co., Ltd.	CID002647	Not Enrolled
Tungsten	Jiangxi Gan Bei Tungsten Co., Ltd.	CID002321	Conformant
Tungsten	Jiangxi Minmetals Gao'an Non-ferrous Metals Co., Ltd.	CID002313	Not Enrolled
Tungsten	Jiangxi Tonggu Non-ferrous Metallurgical & Chemical Co., Ltd.	CID002318	Conformant
Tungsten	Jiangxi Xinsheng Tungsten Industry Co., Ltd.	CID002317	Conformant
Tungsten	Jiangxi Xiushui Xianggan Nonferrous Metals Co., Ltd.	CID002535	Conformant
Tungsten	Jiangxi Yaosheng Tungsten Co., Ltd.	CID002316	Conformant
Tungsten	Kennametal Fallon	CID000966	Conformant
Tungsten	Kennametal Huntsville	CID000105	Conformant
Tungsten	Malipo Haiyu Tungsten Co., Ltd.	CID002319	Conformant
Tungsten	Moliren Ltd	CID002845	Conformant
Tungsten	Niagara Refining LLC	CID002589	Conformant
Tungsten	Nui Phao H.C. Starck Tungsten Chemicals Manufacturing LLC	CID002543	Conformant
Tungsten	Philippine Chuangxin Industrial Co., Inc.	CID002827	Conformant
Tungsten	South-East Nonferrous Metal Company Limited of Hengyang City	CID002815	Conformant
Tungsten	Tejing (Vietnam) Tungsten Co., Ltd.	CID001889	Conformant
Tungsten	Unecha Refractory metals plant	CID002724	Conformant
Tungsten	Vietnam Youngsun Tungsten Industry Co., Ltd.	CID002011	Conformant
Tungsten	Wolfram Bergbau und Hütten AG	CID002044	Conformant
Tungsten	Woltech Korea Co., Ltd.	CID002843	Conformant
Tungsten	Xiamen Tungsten (H.C.) Co., Ltd.	CID002320	Conformant

Tungsten	Xiamen Tungsten Co., Ltd.	CID002082	Conformant
Tungsten	Xinfeng Huarui Tungsten & Molybdenum New Material Co., Ltd.	CID002830	Conformant
Tungsten	Xinhai Rendan Shaoguan Tungsten Co., Ltd.	CID002095	Conformant

Country of Origin List:

This list below sets out possible countries of origin of 3TGs used in the manufacture of products containing conflict minerals that are necessary to the functionality or production of our products. The list is based on publicly available information, our reasonable country of origin investigation, and other due diligence. For the reasons described in the Report, however, these possible countries of origin cannot necessarily be linked to our products.

Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Cambodia, Canada, Chile, China, Columbia, Cote D'Ivoire, Czech Republic, Djibouti, Ecuador, Egypt, Estonia, Ethiopia, France, Germany, Guyana, Hungary, India, Indonesia, Ireland, Israel, Japan, Kazakhstan, Laos, Luxembourg, Madagascar, Malaysia, Mongolia, Myanmar, Namibia, Netherlands, Nigeria, Peru, Portugal, Russia, Sierra Leone, Singapore, Slovakia, South Korea, Spain, Suriname, Switzerland, Taiwan, Thailand, United Kingdom, United States, Vietnam, Zimbabwe, Kenya, Mozambique, South Africa, Democratic Republic of the Congo, Angola, Burundi, Central African Republic, Republic of Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia.