



Environmental Materials Declaration

Interim Customer Report
Rev 0

OBJECTIVE

The objective of this Interim Report is to provide customers with a brief description of ANADIGICS' Environmental Management System (EMS), including key initiatives currently underway. It also provides general information on material composition of ANADIGICS' products and their accompanying packing & shipping items as it relates to controlled, restricted and materials of interest.

INTRODUCTION

ANADIGICS' EMS encompasses a broad spectrum of environmental areas, including social responsibility, Federal, State and Local regulatory obligations, and compliance to worldwide product composition and manufacturing guidelines.

Increasingly, customers are showing interest in the materials that are contained in the components they purchase from ANADIGICS for subsequent incorporation into their products. Throughout the past year, ANADIGICS has received numerous customer inquiries on this topic and, in an effort to ensure consistency in response rather than supplying essentially the same information in different formats, this Interim Report has been proactively prepared as a consolidated response to customer questions.

In order to ensure its chosen approach is in line with industry-wide trends, ANADIGICS has actively embarked on a cooperative effort in the USA on Materials Declaration standardization sponsored by the IPC – Association Connecting Electronics Industries (www.ipc.org/). IPC's initiative is synergistic with a global joint effort currently being carried out by EIA – Electronic Industries Alliance (www.eia.org), EICTA – European Information, Communications and Consumer Electronics Technology Industry Associations (www.eicta.org), and JGPSSI – Japanese Green Procurement Survey Standardization Initiative, a workgroup of the Japanese Electronics and Information Technology Industries Association – JEITA (www.jeita.or.jp).

ANADIGICS' ENVIRONMENTAL AND QUALITY MANAGEMENT SYSTEMS

ANADIGICS' environmental commitment is the main driver for implementing, improving and assuring adequate EMS performance. This commitment represents the social responsibility of the company's top management, who reviews on a regular basis the organization's performance against its environmental objectives, as well as redirects programs, if necessary, to meet changing conditions.

ANADIGICS' EMS requires the participation of the entire organization and it includes critical inputs from various segments of the company. The EMS elements, such as compliance to Federal, State and Local regulations, management of media specific environmental treatment systems, management of product composition, and meeting the targets of pollution prevention initiatives, are conducted in a systematic manner by respective segments of the organization under the direction of the Environmental, Health & Safety function (EHS).

The EHS function and a team of support personnel conduct internal audits of the system on a periodic basis to ensure performance, set objectives and to identify opportunities for continuous improvement.

Currently, ANADIGICS is focusing on two key improvement projects, as summarized below:

• Lead-Free Products

ANADIGICS is aggressively pursuing lead-free initiatives and has already made significant progress to meeting legislative deadlines imposed by customers from Japan and Europe. More detailed information can be found at the company's website (www.anadigics.com/products/addrefs/Application_Note/HighTemp_AppNote_Rev_1.pdf)

At a minimum, the following required Japanese and European timelines will be met for parts supplied to those countries/regions:

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Current Japanese Timeline

Components (SMDs or Modules):

Supplying of lead-free terminal components:
end 2003

Supplying of lead-free components:
end 2004

Equipment (Consumer Electronic/Product):

Adopt lead-free solder into new products:
end 2003

Complete lead-free adoption:
end 2005

Current European Timeline

Removal of Lead from SMD terminations:
end 2004

Complete removal of Lead (modules & materials):
end 2005

Complete conversion to lead-free:
end 2005

Legislative ban on sale of leaded products:
2006 (July 1)

ANADIGICS will publish its detailed roadmap for lead-free products by the end of Q4'03, as part of this report's next revision.

• Chloroform – Pollution Prevention

Chloroform is used in ANADIGICS' manufacturing process as a stripper of wax during the wafer de-mounting step. ANADIGICS uses an activated carbon treatment system to meet stringent air emission requirements. Even though Chloroform is not found in finished products at reportable levels, ANADIGICS has targeted the reduction of chloroform use in manufacturing as a pollution prevention goal.

While ANADIGICS is aggressively pursuing third-party registration of its EMS to the international standard ISO14001 for mid-2004, several requirements of that standard have already been integrated with its mature Quality Management System (QMS).

Registered to the international standard ISO9001 since 1993 – the first Gallium Arsenide (GaAs) integrated circuit company to achieve such

certification, ANADIGICS has established proactive measures regarding environmental issues in the areas of technology & product development, supply chain management, and control of incoming purchased materials.

ANADIGICS' FEDERAL, STATE AND LOCAL REGULATORY PROGRAMS

The following summarizes ANADIGICS' EMS main initiatives regarding regulatory programs:

• RCRA Large Quantity Generator Hazardous Waste Programs

Similar to most electronics manufacturers, ANADIGICS' operations necessitate compliance with **Resource Conservation and Recovery Act (RCRA) Large Quantity Generator Requirements**. ANADIGICS complies with the associated manifesting/tracking, record keeping, EPA ID permit, accumulation, labeling, reporting, treatment, disposal, emergency response, training and other related requirements.

• EPCRA Reporting Programs

ANADIGICS complies with the Federal **Emergency Planning and Community Right to Know Act (EPCRA)** in addition to the applicable State and Local elements. This program includes compliance to all appropriate reporting requirements specified under Sections 302, 304, and 312, emergency response requirements of section 303, Tier 1 and Tier 2 chemical inventory filings requirements of section 311 and Toxic Release Inventory (TRI) requirements of section 313.

• Air Quality/Permitting and Abatement Programs

ANADIGICS fulfills its **Clean Air Act** responsibilities and related State rules through a comprehensive program that includes appropriate permitting, tracking, sampling, annual reporting, and maintaining a solvent abatement system. The solvent system treats emissions of certain solvents into the atmosphere through via activated carbon. The system is carefully maintained and monitored. The air compliance program exceeds applicable requirements.

• National Pollution Discharge Elimination (NPDES) Permitting and Abatement Programs

ANADIGICS complies with NPDES through New Jersey's Pollution Discharge Elimination System (NJPDDES) requirements that exceed all Federal rules. Due to flow volumes, the facility is considered a State Significant Indirect User (SIU), and, as such has obtained the appropriate SIU permit. Under the permit, all facility industrial wastewater is subject to stringent treatment prior to discharge to the Publicly Owned Treatment Works (POTW). Specifically, state-of-the-art ion exchange technologies coupled with ultra-filtration, centrifugation, and neutralization are utilized to meet the stringent SIU wastewater limits.

- **Pollution Prevention and Waste Minimization Programs**

ANADIGICS complies with National and State Pollution Prevention initiatives by making it a high level priority to continually strive to reduce hazardous waste generation through product substitution, and a wide array of recycling, reusing, process upgrade and treatment techniques. All required pollution prevention filings are submitted to appropriate agencies on a yearly basis.

- **Resource Conservation and Recovery Act (RCRA)**

As a large quantity generator, ANADIGICS maintains the applicable EPA registration and complies with its requirements. Specifically, all manifesting, tracking and record keeping is performed on a routine basis, annual training is conducted, accumulation and storage requirements are adhered and biannual reports are properly filed. In addition, ANADIGICS strives for waste reduction, recycling, and reuse, where appropriate.

- **Emergency Response and Fire Prevention Systems**

A qualified team of ANADIGICS employees participates in an Emergency Response Team (ERT) at the main manufacturing facility. In the event of an emergency, these highly trained team members are capable of participating in chemical spill cleanup, fire/gas evacuation procedures and first aid/CPR. The ERT is an active unit within the company that meets regularly to conduct drills and to continually improve procedures. The facility maintains state-of-the-art emergency gas and fire

detection equipment. The fire prevention system is equipped with smoke and heat detectors throughout the building and manufacturing areas, and in HVAC ductwork. This system is tied to an automated central station monitoring system for Police and Fire department notification, with automatic sprinkler systems installed in the entire building.

ANADIGICS Wafer Fabrication area has additional life safety systems, including the following:

1. Toxic gas monitoring system configured for the detection of Hydride, Mineral Acid, Chlorine and other gases. The system utilizes sample tubing installed in and around the area these gases are used. Building alarms and strobes are activated once the detection limit is exceeded.
2. High sensitivity smoke detection system installed in all return air chases of the Wafer Fabrication area. Smoke detection activates building fire system alarms and strobes. Central station dispatches Fire and police departments.
3. CO₂ fire suppression – All wet chemical benches and wet chemical processing equipment are protected with a central CO₂ fire suppression system. Activation of the system is through manual and automatic methods. Manual activation is through the use of local pull stations. Automatic activation is through the use of dual wavelength infrared detectors and heat sensors installed in each tool or system above and below work surfaces. Activation of the system triggers building fire system alarms and strobes. Central station dispatches Fire and Police departments.

In addition, state-of-the-art fire suppression automatically provides fire protection based on the sensing equipment.

- **Environmental Closure**

Recently, ANADIGICS moved from the original building where manufacturing operations began in 1988 to a 150,000 square foot, state-of-the-art manufacturing facility. Certain State regulations require environmental investigation upon decommissioning a manufacturing facility. As such, ANADIGICS has performed all appropriate investigations and remediation to receive clean status with respect to the former operating facility.

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MATERIAL COMPOSITION DECLARATION

ANADIGICS is currently participating in an IPC’s Material Declaration Committee to develop standardized industry guidelines for analytical and reporting purposes. The IPC initiative is utilizing the EIA’s Material Declaration Guide (www.eia.org/resources/2001-05-10.pdf) as its primary reference, with the objective of publishing its findings and associated guidelines in Q3’03.

ANADIGICS will continue following industry guidelines on Material Declaration, particularly as they relate to EIA Material Declaration Guide, and changes/updates to those guidelines will be reflected in future revisions to this report.

According to the EIA Material Declaration Guide, materials that require disclosure from manufacturers are classified into three categories, as follows:

- Section A Materials (*Controlled*): any intentionally added listed materials that are used during manufacture of, or incorporated into products or components are disclosed.
- Section B Materials (*Restricted*): any intentionally added listed materials that are incorporated into components or products if used in restricted applications.
- Section C Materials (*Materials of Interest*): any intentionally added listed materials that are incorporated into components in amounts greater than 1,000 parts per million (ppm) or other specified level.

ANADIGICS is addressing the Material Composition Declaration issue from four distinct perspectives, as follows:

1. PRODUCTS

In general, ANADIGICS’ products involve four packaged configurations: standard plastic packages, lead-free plastic packages, standard modules, and lead-free modules.

The sub-components comprising the basic product construction may include Gallium Arsenide (GaAs) and/or Silicon (Si) die, die attach epoxy, copper leadframe, plastic mold compound, leadframe plating, laminate-based rigid printed boards, and surface mount devices.

Regarding materials listed in the EIA Material Declaration Guide – and to the best of ANADIGICS’ current knowledge, the material composition for its products is:

- Section A Materials (*Controlled*): No listed controlled materials are intentionally added to any ANADIGICS’ products.
- Section B Materials (*Restricted*): No listed restricted materials are intentionally added to any ANADIGICS’ products.
- Section C Materials (*Materials of Interest*): see

Table 1

Material of Interest (intentionally added and greater than 1000ppm) ⁽¹⁾	Description of Use	Location in Product
Antimony	Heat resistant additive in some epoxy mold compounds	May be found in mold compounds
Arsenic	Gallium Arsenide semiconductor substrate	May be found in die substrates
Lead	Interconnect solder in 80% Sn 20% Pb ratio	May be found in lead terminal plating & solder
Gold	Internal bond wires	May be found in bond wire material
Copper	Electrical interconnects	May be found in lead-frame structure
Amine	Plastic colorant	May be found in mold compounds

ANADIGICS will publish a more comprehensive Material Declaration for its products by the end of Q4'03, as part of this report's next revision.

Table 1: Materials of Interest (Products)

Notes:

(1) ANADIGICS is currently developing a comprehensive sampling plan to report concentrations in parts.

2. MANUFACTURING PROCESSES

ANADIGICS products are manufactured in the USA and/or overseas, including wafer fabrication and assembly processes, at operations owned by the company or through subcontracting partnerships.

For manufacturing processes carried out at ANADIGICS' owned operations, the material composition regarding materials listed in the EIA Material Declaration Guide – and to the best of ANADIGICS current knowledge, is as follows:

• Section A Materials (*Controlled*):

No intentionally added listed controlled materials are used during the manufacture of ANADIGICS' products.

For manufacturing processes carried out through subcontracting partnerships, ANADIGICS is currently surveying its partners to benchmark their manufacturing processes against the EIA Material Declaration Guide. Should any Controlled Materials be identified, ANADIGICS and its partner(s) will endeavor to develop plan(s) to meet the standards as set forth in the EIA documentation and/or any other applicable industry-standards/guidelines.

ANADIGICS will publish an update concerning its subcontracting partners and the corresponding Material Declaration by the end of Q4'03, as part of this report's next revision.

3. PACKING/SHIPPING MATERIAL

ANADIGICS endeavors to use packing/shipping items comprised of environmentally compatible materials, portions of which can be recycled, easily disposed of, or reused.

ANADIGICS is currently revisiting all packing/shipping materials and a more comprehensive Material Declaration for those items will be published by the end of Q4'03, as part of this report's next revision.

4. SUPPLY CHAIN

ANADIGICS discourages the use of certain materials with its key suppliers. Written contracts in place with those suppliers include language prohibiting the use of such materials.

ANADIGICS corresponds with its key suppliers concerning controlled and restricted materials as listed in the EIA Material Declaration Guide. No purchased compounds belong to the controlled or restricted categories of materials.

ANADIGICS is currently surveying its top 10 suppliers to benchmark the supply chain against the EIA Material Declaration Guide. Should any Materials of Interest be identified, ANADIGICS and its supply chain will endeavor to develop plan(s) to meet the standards as set forth in the EIA documentation and/or any other applicable industry-standards/guidelines.

ANADIGICS will publish an update concerning its supply chain and the corresponding Material Declaration by the end of Q4'03, as part of this report's next revision.

CONTACT INFORMATION

For additional information on this report and its subsequent Revision(s), please contact ANADIGICS Sales (www.anadigics.com/sales-contact.html).

NOTICE

The information in this report is deemed reliable, but not guaranteed; it may be amended or updated by ANADIGICS without prior notice. ANADIGICS strongly recommends that customers confirm that the information is current and accurate.

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ANADIGICS, Inc.

141 Mount Bethel Road
Warren, New Jersey 07059, U.S.A.
Tel: +1 (908) 668-5000
Fax: +1 (908) 668-5132

URL: <http://www.anadigics.com>
E-mail: Mktg@anadigics.com

IMPORTANT NOTICE

ANADIGICS, Inc. reserves the right to make changes to its products or to discontinue any product at any time without notice. The product specifications contained in Advanced Product Information sheets and Preliminary Data Sheets are subject to change prior to a product's formal introduction. Information in Data Sheets have been carefully checked and are assumed to be reliable; however, ANADIGICS assumes no responsibilities for inaccuracies. ANADIGICS strongly urges customers to verify that the information they are using is current before placing orders.

WARNING

ANADIGICS products are not intended for use in life support appliances, devices or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.

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传真：0755-83376182 (0) 13823648918 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

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西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382