

PROMOTING THE
PHASE DOWN OF
DENTAL AMALGAM
IN DEVELOPING
COUNTRIES

Copyright © United Nations Environment Programme and World Health Organization, 2014.

Except where otherwise indicated, this publication may be reproduced and disseminated in whole or in part and in any form for private study, research and teaching purposes without special permission from the copyright holder, provided that appropriate acknowledgement of the source is made and that United Nations Environment Programme (UNEP) and the World Health Organization (WHO)'s endorsement of users' views, products or services is not implied in any way. UNEP and WHO would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication including the translations and adaptations may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from UNEP.

Citation

UNEP and WHO. 2014. Promoting the phase down approach of dental amalgam in developing countries.

Disclaimer

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of UNEP or of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. Moreover, the views expressed do not necessarily represent the decision or the stated policy of UNEP and WHO, nor does citing of trade names or commercial processes constitute endorsement. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these are or have been endorsed or recommended by UNEP or WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters. All reasonable precautions have been taken by UNEP and WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall UNEP and WHO be liable for damages arising from its use.

UNEP promotes environmentally sound practices globally and in its own activities. This publication is printed on 100% recycled paper, using vegetable inks and other eco-friendly practices. Our distribution policy aims to reduce UNEP's carbon footprint.

All photos, unless otherwise stated, were taken from Flickr Creative Commons.

UNEP promotes
environmentally sound practices
globally and in its own activities. This
publication is printed on 100% recycled paper,
using vegetable inks and other eco-friendly
practices. Our distribution policy aims to reduce
UNEP's carbon footprint.

CONTENTS

- 5 What is dental amalgam
- 7 Dental mercury releases to water, soil and air
- 8 Challenges related to dental mercury
- 10 WHO-UNEP Expert Group meeting on dental restorative materials
- 11 East Africa Dental Amalgam Phase-down Project
- 12 Project components and activities
- 14 Major activities
- 15 Project outputs



We wish to thank our partners and all stakeholders who contributed to the implementation of the East Africa Dental Amalgam Phase-Down Project (EADAP).

WHAT IS DENTAL AMALGAM?

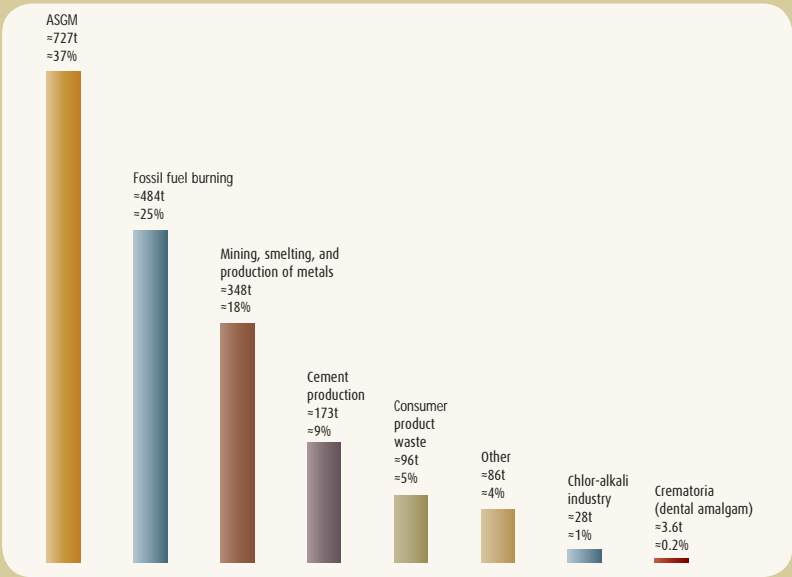
Dental amalgam is a combination of metals, about 50 per cent of mercury in elemental form and the other metals being silver, tin, copper, and other trace metals. It has been used in the last 150 years for dental restoration due to its mechanical properties and the long term familiarity of dentists with its use.

(UNEP and WHO, 2008)



The UNEP Global Mercury Assessment Report 2013 revealed that emissions from cremation of the dead having dental amalgam accounts for 3.6 metric tonnes or 0.2 per cent of total global anthropogenic emissions.

Global anthropogenic atmospheric emissions



Source: UNEP, Global Mercury Assessment, 2013.

DENTAL MERCURY RELEASES TO WATER, SOIL AND AIR



A significant source of mercury pollution, dental amalgam is:

- often the largest source of mercury in municipal wastewater
- in the soil via wastewater sludge, land disposal and the burial of deceased persons with dental fillings
- an increasing source of mercury air pollution from wastewater sludge incineration and crematoria (due both to the rise in cremation and the increasing percentage of amalgam retained in the teeth of the deceased)

Major pathways of mercury due to use of dental amalgam every year

Main pathways	Mercury (metric tonnes/ year)
Atmosphere	50 – 70
Surface water	35 – 45
Groundwater	20 – 25
Soil	75 – 100
Recycling of dental amalgam	40 – 50
Sequestered, secure disposal	40 – 50
Total	260 – 340

Source: World Health Organization, Future Use of Materials for Dental Restoration, 2011. Available at: http://www.who.int/oral_health/publications/dental_material_2011.pdf

CHALLENGES RELATED TO DENTAL MERCURY

Trade in dental mercury

Customs declarations and tariff codes generally label dental amalgam as “medical device”. It is impossible to separate from other statistics in the same category.

- > Trade databases have no specific code for dental amalgam; trade data may be included in different categories
- > Some dental amalgam are mixed by hand, others are used in form of capsules
- > Few countries specifically track dental mercury use

The real cost of dental mercury

- > Dental amalgam is cheaper for the patient
- > Negative externalities (impact on the environment) associated with the use of dental amalgam are not factored in the actual price of dental amalgam restorations
- > Phasing-down yields environmental and health benefits

(Source: EU- DG ENV, BIO Intelligence Service. *Study on the potential of reducing mercury pollution in the environment*, March 2012.

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_14832

