

March 2020

Dear Valued Customer,

We are writing to update you about two regulatory developments relevant to our titanium dioxide products: the EU Delegated Regulation classifying titanium dioxide (TiO₂) as a suspected carcinogen by inhalation, and a recent self-classification of a substance known as TMP by the relevant REACH consortium as a suspected reproductive toxicant. TMP is widely used as a surface treatment for TiO₂ pigments including most of the Tronox product line.

1. EU Delegated Regulation (EU) 2020/217 Classifying Titanium Dioxide

You will be aware that this regulation has been through significant debate and was finally approved by the European Commission (EC) via a delegated act. The regulation, which will apply from 1st October 2021, adds an entry into Annex VI of Regulation (EC) No 1272/2008 (CLP) such that if certain criteria are met, TiO₂ in powder form and mixtures in powder form containing TiO₂, are to be classified. The classification is a “suspected carcinogen by inhalation” (Cat.2 Carc. Inhalation), with hazard statement H351. It therefore requires a hazard label to be included on the packaging and updated Safety Data Sheets to be issued.

The regulation endeavours to confine the classification of TiO₂ to powders by referring to “powder TiO₂ and mixtures placed on the market in powder form containing 1% or more of TiO₂ which is in the form of, or incorporated in, particles.” Liquid and some solid mixtures are not classified, but specific warning statements and labels need to be applied to those that contain more than 1% of TiO₂. The classification further acknowledges that this hazard only occurs when respirable dust is inhaled in quantities leading to significant impairment of particle clearance mechanisms in the lung (Note W). At this time, there are no changes to Occupational Exposure Limits (OELs) for either TiO₂ or for dusts in general. Accordingly, the existing workplace exposure controls currently in place at our manufacturing sites are expected to remain unchanged. Further details of the Regulation as they apply to TiO₂ are reproduced in Appendix 1 to this letter and additional information



can also be obtained from the website of the Titanium Dioxide Manufacturers Association (TDMA) - <https://tdma.info/news/>

Tronox is currently reviewing the manner of implementation of this complex regulation and working through some specific details that at this stage still leave some ambiguity, for example on how waste containing TiO₂ will be regulated. Tronox is actively involved as a member of the TDMA to promote consistency in implementation of this regulation. This includes the development of a template/model for the required extended Safety Data Sheet (ext-SDS) and a comprehensive TDMA document to assist users of TiO₂ and other affected stakeholders in their interpretation and application of the complex classification criteria. We expect that this document will be published during the second quarter of 2020. We will notify you as soon as it becomes available. The TDMA is also trying to establish a protocol for the measurement of 'airborne particle size', although we do expect that whatever measurement is used, Tronox pigments will meet the definition within the regulation framework.

The labelling on our packaging in Europe is also an important topic and with a global supply network it raises questions for how we manage this. We recognize that all TiO₂ product sold into the market will need to be correctly labelled by 1st October 2021. You should expect to see implementation of the new labelling on Tronox products well in advance of this date.

2. Self-classification of surface treatment agent TMP

Tronox manufactures a number of titanium dioxide (TiO₂) pigment products (full list in Appendix 2 to this letter) that are surface treated with 1,1,1-Trimethylolpropane CAS No. 77-99-6 (TMP) at levels up to 0.45 wt. %. TMP is a widely used organic surface treatment for titanium dioxide pigments to improve flow and dispersion properties. It is also used in a wide range of other applications including in adhesives, sealants, coatings, inks, lubricants, and polishes.

In a recent development under the EU REACH process, registrants of TMP were required by the authorities to conduct a reproductive toxicity study as part of a compliance check.

This study revealed evidence of reproductive toxicity and based on this finding, the TMP



consortium recently decided to self-classify TMP as “suspected reproductive toxicant (Rep. Tox. Cat. 2)” with GHS hazard statements H361f and H361d.

This classification of TMP does not change the classification of TiO₂ pigments in the EU and most non-EU countries that have adopted the GHS¹. It may require a label with hazard statement and precautionary phrases to be added to TMP-treated TiO₂ products sold within the U.S. and some other countries. Given our global supply network, Tronox is assessing this new information, reviewing our labelling strategy and actively looking at how this also influences the changes to Safety Data Sheets (SDS) for our TMP-treated products.

Currently there is no change to the regulations that govern the presence of TMP in food contact applications. Our risk assessment will determine if there will need to be changes to the claims or declarations we make covering food contact and other applications. We will inform you about the results of our assessment as soon as it is complete.

We recognize that both of these regulatory developments may raise concerns. We are highlighting both of these regulatory issues as their implementation in our global business and supply chains are being considered in parallel. In particular, the labelling of our bags is a key aspect to consider within our global supply chain. Please be assured that we are doing everything possible to address these, and we are committed to keeping you informed as more information becomes available. In the meantime, please forward any questions to your usual Tronox representative or to the Tronox Product Stewardship team at chemprodsteward@tronox.com.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Cole".

Morris Cole
Director, Product Stewardship


¹ Globally Harmonised System of Classification and Labelling of Chemicals

Appendix 1

TiO₂ Classification Entry

The new entries in different sections of Regulation (EC) No 1272/2008 (CLP) to be applied from 1st October 2021 are shown below:

Index No	Chemical Name	EC No	CAS No	Classification		Labelling			Specific Conc. Limits, M-factors and ATEs	Notes
				Hazard Class and Category Code(s)	Hazard statement Code(s)	Pictogram, Signal Word Code(s)	Hazard statement Code(s)	Suppl. Hazard statement Code(s)		
022-006-002	titanium dioxide; [in powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm]	236-675-5	13463-67-7	Carc. 2	H351 (inhalation)	GHS08 Wng	H351 (inhalation)			V, W, 10

Labelling pictogram	GHS08	 Warning
Hazard statement	H351 (inhalation)	Suspected of causing cancer (inhalation)

Note V:

If the substance is to be placed on the market as fibres (with diameter < 3 µm, length > 5 µm and aspect ratio ≥ 3:1) or particles of the substance fulfilling the WHO fibre criteria or as particles with modified surface chemistry, their hazardous properties must be evaluated in accordance with Title II of this Regulation, to assess whether a higher category (Carc. 1B or 1A) and/or additional routes of exposure (oral or dermal) should be applied

Note W:

It has been observed that the carcinogenic hazard of this substance arises when respirable dust is inhaled in quantities leading to significant impairment of particle clearance mechanisms in the lung.

This note aims to describe the particular toxicity of the substance; it does not constitute a criterion for classification according to this Regulation.

Note 10:

The classification as a carcinogen by inhalation applies only to mixtures in powder form containing 1% or more of titanium dioxide which is in the form of or incorporated in particles with aerodynamic diameter ≤ 10 µm.

CLP Annex II – Special rules for labelling solid and liquid mixtures containing titanium dioxide:

Situation	Code	Label on packaging
Liquid mixtures containing 1% or more of titanium dioxide particles with aerodynamic diameter equal to or below 10 µm	EUH211	Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.
Solid mixtures containing 1% or more of titanium dioxide	EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.
Liquid and solid mixtures not intended for the general public and not classified as hazardous which are labelled with EUH211 or EUH212	EUH210	Safety data sheet available on request.

Appendix 2

Tronox Products Surface-treated with TMP

TiONA® 595
 TiONA® 696
 TiONA® 813
 TiONA® 822
 TiONA® 826
 TiONA® 828
 TiONA® 828E

TiONA® 834
 TiONA® 880
 TiONA® 8140
 TiONA® 288
 TiONA® 41J
 TiONA® R-KB-2
 TiONA® R-U-F

TiONA® 113
 TiONA® 121
 TiONA® 122
 TiONA® 128
 TiONA® 134
 TiKON™ 35
 CR-8