# ISO/TS 21623:2017-11 (E)

## Workplace exposure - Assessment of dermal exposure to nano-objects and their aggregates and agglomerates (NOAA)

## Contents

Page


Foreword ..... iv

Introduction ..... v

1 Scope ..... 1

2 Normative references ..... 1

3 Termsanddefinitions ..... 1

4 Dermal exposure to NOAA -- Evidence and exposure routes ..... 4
4.1 General ..... 4
4.2 Source domains ..... 4
4.3 Exposure routes ..... 5

5 Stepwise approach for assessment of dermal exposure to NOAA ..... 6
5.1 General ..... 6
5.2 Step 1: Desk evaluation ..... 7
5.2.1 Step 1A: Evaluation of toxicological hazard based on NOAA composition ..... 7
5.2.2 Step 1B: Screening for potential risks associated with dermal exposure to insoluble (non-flexible) NOAA ..... 8
5.2.3 Step 1C: Screening for potential risks associated with dermal exposure based on job title ..... 10
5.3 Step 2: Observation of potential for dermal exposure ..... 11
5.4 Step 3: Additional observation of worker behaviour ..... 11
5.5 Step 4: Quantification of NOAA ..... 11
5.6 Step 5: Evaluation and review ..... 12

Annex A (informative) Industries associated with use of nanomaterials or nano- enabled products . 13

Annex B (informative) How to determine skin disruption? ..... 16

Annex C (informative) DeRmal Exposure Assessment Method (DREAM) ..... 18

Annex D (informative) Inadvertent ingestion exposure ..... 24

Annex E (informative) Exploring dermal exposure measurements of nanoparticles ..... 27

Bibliography ..... 31