# ISO 11076:2006-11 (E)

## Aircraft - Ground-based de-icing/anti-icing methods with fluids

## Contents

Page


Foreword ..... v

Introduction ..... vi

1 Scope ..... 1

2 Normative references ..... 1

3 Terms and definitions ..... 2

4 Symbols and abbreviated terms ..... 5

5 General requirements ..... 5

6 Quality assurance programme ..... 6

7 Requirements for staff training and qualifications ..... 6
7.1 Personnel qualifications ..... 6
7.2 Training for crews ..... 7
7.3 Subjects to be covered in training ..... 7
7.4 Records ..... 7

8 Requirements for fluid handling ..... 8
8.1 Environment ..... 8
8.2 Fluid acceptance ..... 8
8.3 Mixing of different products ..... 12
8.4 Storage ..... 13
8.5 Pumping ..... 13
8.6 Transfer lines ..... 13
8.7 Heating ..... 13
8.8 Application ..... 14

9 Contamination check ..... 14

10 Procedures ..... 14
10.1 Need for de-icing/anti-icing ..... 14
10.2 De-icing ..... 14
10.3 Anti-icing ..... 17
10.4 Local frost prevention in cold-soaked wing areas ..... 18

11 Limits and precautions ..... 19
11.1 Fluid-related limits ..... 19
11.2 Aircraft-related limits ..... 20
11.3 Procedure precautions ..... 20
11.4 Clear-ice precautions ..... 22

12 General aircraft requirements after de-icing/anti-icing ..... 22
12.1 General ..... 22
12.2 Wing, tail and control surfaces ..... 22
12.3 Pitot heads and static ports ..... 22
12.4 Engines ..... 23
12.5 Air-conditioning inlets and exits ..... 23

12.6 Landing gear and landing-gear doors ... 23
12.7 Fuel-tank vents ... 23
12.8 Fuselage ... 23
12.9 Flight-control check ... 23
12.10 Dried-fluid residues when the aircraft has not been flown after anti-icing ... 23
12.11 Special maintenance considerations ... 23

13 Post-de-icing/anti-icing-treatment check ... 23

14 Pre-take-off check and pre-take-off contamination check ... 24
14.1 Pre-take-off check ... 24
14.2 Pre-take-off contamination check ... 24

15 Communication procedures ... 24
15.1 De-icing/anti-icing operation ... 24
15.2 Anti-icing code ... 24
15.3 Post-treatment check and transmission of the anti-icing code to the pilot-in-command ... 25
15.4 All-clear signal ... 25
15.5 Emergency procedures ... 25
15.6 Aircraft movement ... 25

16 Off-gate de-icing/anti-icing procedures ... 25
16.1 Communications ... 25
16.2 Taxi guidance ... 26
16.3 General instructions ... 26
16.4 Responsibilities ... 26
16.5 Terminology ... 26

17 Holdover time ... 26

Annex A (normative) Guidelines for the application of, and example of holdover times anticipated for, ISO type I fluid/water mixtures ... 28

Annex B (normative) Guidelines for the application of, and example of holdover times anticipated for, ISO type II, type III and type IV fluid/water mixtures ... 30

Bibliography ... 32