

Recommended Practices for the Storage and Dispensing of Diesel Exhaust Fluid (DEF)



CONTENTS

Foreword..... iii

SECTIONS

1. Introduction..... **1**

1.1 Background 1

1.2 Purpose 1

1.3 Scope 1

1.4 Sources 1

1.5 Use of Other PEI Recommended Practices 1

1.6 Importance of Competent Installers and Service Technicians 1

1.7 Written Plans and Specifications 1

1.8 Unexpected Conditions 1

2. Definitions **2**

2.1 Authority Having Jurisdiction 2

2.2 Breakaway 2

2.3 British Standard Pipe Parallel (BSPP) 2

2.4 British Standard Pipe Taper (BSPT) 2

2.5 Class I, Division 1 2

2.6 Class I, Division 2 2

2.7 Creep 2

2.8 Crystalization 2

2.9 Diesel Exhaust Fluid (DEF) 2

2.10 Dispenser 2

2.11 Drum 2

2.12 Handbook 44 2

2.13 Handbook 130 2

2.14 Hanging Hardware 2

2.15 Intermediate Bulk Container (IBC) 3

2.16 *International Fire Code* (IFC) 3

2.17 International Organization for Standardization (ISO) 3

2.18 Listed 3

2.19 Marine Diesel Exhaust Fluid 3

2.20 Meter Creep 3

2.21 Mini-Bulk System 3

2.22 *National Electrical Code* (NEC) 3

2.23 National Pipe Thread (NPT) 3

2.24 Nozzle 3

2.25 Refractometer 3

2.26 Safety Data Sheet (SDS) 3

2.27 Selective Catalytic Reduction (SCR) 3

2.28 Shelf Life 3

2.29 Storage Tank 3

2.30 Tote 3

2.31 Turnover 3

2.32 Urea 3

3. DEF Characteristics **3**

3.1 General 3

3.2 Quality Requirements 3

3.3 Storage Temperatures 4

3.3.1 High Storage Temperatures 4

3.3.2	Low Storage Temperatures	4
3.4	Shelf Life	4
3.5	Crystalization.....	4
3.6	Creep	4
4.	Material Compatability.....	4
4.1	General	4
4.2	Determining Compatability.....	5
5.	Equipment	5
5.1	General	5
5.2	Storage Systems	5
5.2.1	General	5
5.2.2	Bulk Tanks	6
5.2.2.1	Location	6
5.2.2.2	Installation of Aboveground Storage Tanks (ASTs)	6
5.2.2.3	Installation of Underground Storage Tanks (USTs).....	6
5.2.2.4	Vent Lines.....	6
5.2.2.5	Anti-Siphon Valves and Pressure-Regulator Valves for Suction Systems.....	7
5.2.2.6	Overfill Protection	7
5.2.3	Mini-Bulk Storage Systems	7
5.2.4	Drums and Totes	7
5.3	Connectors and Connections.....	7
5.3.1	General	7
5.3.2	Pumps, Piping and Dispensers.....	7
5.3.3	Hanging Hardware	7
5.4	Pumps	7
5.5	Piping	7
5.6	Sealants.....	7
5.7	Dispensers	7
5.8	Hoses and Hose Assemblies.....	8
5.8.1	Swivels	8
5.8.2	Breakaways	8
5.8.3	Hose Retractors	8
5.9	Nozzles	8
5.10	Meters.....	8
5.11	Bulk Fill Connections	8
5.11.1	Fill Boxes and Spill Containers	8
5.12	Filters.....	9
5.13	Tank Level Monitoring	9
5.14	Release Detection.....	9
5.14.1	General	9
5.14.2	Tanks	9
5.14.3	Piping	9
5.14.4	Sumps	9
5.15	Oil/Water Separators	9
5.16	Preparation for First Fill.....	9
5.17	Decommissioning or Alternate Tank Service.....	9
6.	Regulations	10
6.1	General	10
6.1.1	Fire Safety Regulations.....	10
6.1.2	Weights and Measures	11
6.1.2.1	National Type Evaluation Program (NTEP) Approval	11
6.1.2.2	Labeling.....	11
6.1.3	Tanks	11

7. Maintenance	11
7.1 General	11
7.2 Nozzles	11
7.3 Hoses and Hose Assemblies	11
7.4 Dispensers	12
7.4.1 Filters	12
7.4.2 Meter Calibration	12
7.5 Fill Boxes and Spill Containers	12
7.6 Vents	12
8. Quality Assurance/Quality Control	13
9. Spill Cleanup and Disposal	13
10. Labeling and Customer Education	13
11. Safety	13
11.1 Handling	13
11.2 Fire and Explosion	13
11.3 Disposal	13

APPENDICES

Appendix A: DEF Quality Characteristics	14
Appendix B: EPA Letter Of Clarification	15
Appendix C: Publication Reference	17