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BLENDING OF ALCOHOLS WITH
DIESEL FUELS *
US/GLO/83/039

prepared by

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** APACE Research Ltd., Richmond, Australia

PREFACE

This report presents the work undertaken by APACE RESEARCH LTD., to evaluate the performance of a Diesel Engine when fuelled with Surfactant Stabilized Hydrated Ethanol/Distillate Emulsions containing Ignition Improving Additives. The work was funded by UNIDO under project US/GLO/83/039 - Blending of Alcohol with Diesel Fuels.

APACE RESEARCH LTD. has developed an effective distillate/alcohol emulsifier technology for the blending of hydrated alcohols with distillate and the use of "diesohols" in unmodified Diesel Engines. Up to 30% substitution of Diesel for Ethanol can be achieved with minimum engine modification.

The report describes a test programme undertaken to evaluate the thermodynamic performance of a commercially available, unmodified engine with ethanol/distillate emulsions containing varying proportions of different ignition improvers. Experimental equipment, procedures and results are described. The significance of the results are discussed and recommendations for further activities involving vehicle trials and fleet tests in Developing Countries are presented.

Explanatory Notes

Besides the common abbreviations, symbols and terms, the following have been used in this report:

ARL	Apac Research Ltd.
BTDC	Before Top Dead Centre
deg	Degrees
ION	Iso Octyl Nitrate
kPa	Kilo Pascals
lbf	Pounds Force
NM	Newton-Meters
rpm	Revolutions per minute
SFC	Specific Fuel Consumption
TEGDN	Triethyleneglycoldinitrate

Mention of the names of firms and commercial products does not imply endorsement by the United Nations Industrial Development Organization.

CONTENTS

	Page
EXECUTIVE SUMMARY	6
ABSTRACT	8
ETHANOL/DISTILLATE EMULSIFIED BLENDS IN DIESEL ENGINES	9
1. INTRODUCTION	9
2. EXTENSION OF DIESEL FUELS WITH ALCOHOLS	10
2.1 Background	10
2.2 Technology Description and Research and Development Rationale	11
2.3 Commercial Suitability Criteria	15
2.4 Physical Suitability Criteria	15
3. PROJECT DESCRIPTION	16
3.1 Project Objectives	16
3.2 Project Work Programme	16
3.3 Main Findings and Main Conclusions	16
3.4 Diesel Engine Thermodynamic Performance	17
3.5 Conclusions on the Results Obtained	21
4. POTENTIAL FOR INDUSTRIAL/COMMERCIAL APPLICATION	22
5. ENGINE PERFORMANCE TESTS	24
5.1 TEST ENGINES	24
5.2 ENGINE TEST EQUIPMENT AND MEASURING METHODS	25
5.3 TEST FUELS	33
5.4 ENGINE MATRIX TESTS	35
5.5 ENGINE MATRIX TEST RESULTS	37
5.6 DISCUSSION OF ENGINE TEST RESULTS	46
5.7 CONCLUSIONS ON ENGINE PERFORMANCE	48
6. TOYOTA LANDCRUISER	48
7. RECOMMENDATIONS	50
8. APPENDICES	52
8.1 Engine Results Curves	52, 57
8.2 Tables of Engine Test Results	182
PHOTOGRAPHS	240
Ph.G.1	240
Ph.G.2	241
Ph.G.3	242
Ph.G.4	243
Ph.G.5	244

TABLES

	Page
Table 1. Comparison of Currently Available Methods for Achieving Substitution of Alcohol in Existing Diesel Engines	14
Table 2. Maximum Cylinder Pressure	18
Table 3. Maximum Rate of Cylinder Pressure Rise	18
Table 4. Ignition Delay	19
Table 5. Observed Engine Torque	20
Table 6. Thermal Efficiency	20
Table 7. Brake Specific Fuel Consumption	21
Table 8. Specification for FORD 3000 Engine	24
Table 9. Fuel Properties	34
Table 10. Acceleration times for Toyota Landcruiser	49