PB86-223740

Distr.
LIMITED

UNIDO/IO.625
3 January 1986

ENGLISH

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

BLENDING OF ALCOHOLS WITH DIESEL FUELS *

US/GLO/83/039

prepared by

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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	Apace 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.

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