



UGANDA NATIONAL BUREAU OF STANDARDS

ELECTRICAL LABORATORY TEST REPORT

Test Report No: EL/2026/00154

Sample No: L/0191/2026T

Field No: N/A

Name of Client: SYNTECH INTEGRATED-UGANDA LTD

Address: P. O. Box 32365, Kampala Road, Uganda

Email: kasigwa@gmail.com

Manufacturer / Exporter: SYNTECH INTEGRATED-UGANDA LTD

Sample Quantity : One truck

Sample Description: HHO Generator , CAR KIT for Sino truck, vehicle plate no: KCK353Z with HHO model HCK-250, 25VCD, 900Wr

Lot Size: NA

State of Sample(s): Sample in good condition

Lab Receipt Date: 2026-02-17

Analysis Start Date : 2026-02-17

Analysis End Date: 2026-02-17

Test Method(s): ES 7074:2024

Test Results

#	Parameters	Results	Specification	Status
1	Marking & Labelling			
	i). General marking compliance	Safety/electrical hazard labels present; nameplate affixed	Verify safety signs and mandatory markings [Markings shall comply with ES ISO 3864-2 and ES ISO 17398]	NA
	ii). Visibility of data plate	Readable after mounting on enclosure	Verify after mounting orientation with data plate readable in normal installed position	NA
	iii). Manufacturer details	“KAS GREEN POWER” clearly marked with contact information	Inspect data plate, showing manufacturer name, trademark, contact	NA
	iv). Model & Serial number	Model HCK-250; SN 250-083	Model or type must be marked Check plate for model or type and unique serial required	NA
	v). Date of construction	June 2024 marked	Construction date must be marked	NA
	vi). Electrical input voltage	24 VDC marked; matches vehicle system	Voltage rating must be marked, compare to spec (Voltage rating)	NA
	vii). Current/Power rating	?900 W marked; peak current 27 A observed	Current or power rating displayed	NA
	viii). Max hydrogen production	250 L/H ±10% marked	Confirm label H2 rate in kg/g or L/m ³ per time	NA
	ix). Hydrogen output pressure	?0.25 MPa marked	Inspect output pressure marking	NA

Analysed By: Wadia Alfred

Technical Signatory:

Mukwaya Bernard

Date: 2026-02-18

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#	Parameters	Results	Specification	Status
	x). Max oxygen production (if applicable)	Not separately specified (HHO mixed gas system)	Verify if applicable ,O2 rate marked	NA
	xi). Standard reference	Standard reference indicated	Must reference ES ISO 22734	NA
	xii). Water usage rate	Provided for in documentation	Inspect water consumption rate	NA
	xiii). Flow direction labeling	Gas outlet and flow direction indicated	Visual inspection of tubing, ports show flow direction	NA
	xiv). Electrical connection marking	24VDC terminals clearly marked	Inspect power, earth, control marking	NA
	xv). Manual controls marking	Switch and indicator labeled	Inspect control function labeling	NA
	xvi). Fuse labeling	Inline 30A fuse installed and identified	Inspect fuse rating and replacement information	NA
	xvii). Component identification	Components labeled and consistent with documentation	Check tags, labels , components must match documentation	NA
2 Warning Symbols & Hazards				
	i). Warning signs	Electrical and gas hazard warnings present	Cross check warning signs and identification of hazards	NA
	ii). Safety warnings placement	Warning labels placed near terminals and gas outlet	Inspect positions near hazards	NA
	iii). Safety sign compliance	Symbols consistent with ISO format	Signs follow ISO 3864-2 format	NA
3 Documentation – Operation, Installation & Maintenance				
	i). Installation guidance	Installation steps and diagrams described	Review manual for clarity/diagrams, include step-by-step installation instructions	NA
	ii). Power connection instructions	24VDC wiring instructions and 30A fuse specified	Confirm wiring guide and fuse specification	NA
	iii). Grounding instructions	Chassis grounding described	Must describe proper grounding / earthing procedure	NA

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	iv). Ventilation instructions	Installation in ventilated space required	Must advise installation in ventilated space	NA
	v). Clearance guidance	Clearance spacing specified for cooling/safety	Space for installation and ventilation must be specified	NA
	vi). Vent hose routing	Hydrogen vent routing illustrated	Must describe hydrogen vent hose routing	NA
	vii). Controls identification	Indicators and switches explained	All controls and indicators must be labeled	NA
	viii). Operating procedure	Operating sequence provided	Must include normal operating steps	NA
	ix). Safety warnings during operation	Hydrogen ignition and ventilation warnings included	Warnings for hydrogen handling and ignition risk	NA
	x). Troubleshooting steps	Basic troubleshooting table provided	Basic troubleshooting section required	NA
	xi). Consumable handling	Refill procedure and PPE advice included	Instructions for electrolyte refilling	NA
	xii). Maintenance schedule	Periodic inspection schedule recommended	Must include periodic maintenance timetable	NA
	xiii). Leak inspection procedure	Leak check guidance included	Guidance on hydrogen leak checks	NA
	xiv). Cleaning instructions	Safe cleaning instructions provided	Must state safe cleaning method	NA
	xv). Waste/electrolyte disposal	Safe disposal instructions included	Must explain safe disposal of used electrolyte	NA
	xvi). Emergency actions	Emergency shutdown guidance provided	Manual must provide emergency shut-off and hazard actions	NA
	xvii). Warning symbols explanation	Symbols explained in manual	All symbols used must be explained	NA
	xviii). User language	English manual provided	Documentation must be understandable in destination country language	NA
4	Grounding and Bonding			

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	i). Ground Bond Integrity	Bonded to vehicle chassis; secure connections	System shall be bonded to chassis/earth to avoid hazardous potential buildup	NA
	ii). Grounding Arrangement	Proper lug termination; 2.5 mm ² cable	Grounding system shall follow safe equipment wiring practices	NA
	iii). Continuity of Protective Earth	Continuous path to battery negative verified	Must provide continuous protective earth path	NA
5	Touch Current (Leakage Current)			
	i). Touch Current Limit	No shock hazard observed	Accessible surfaces shall have safe leakage current	NA
	ii). Surface Accessibility	No exposed energized parts	Metallic exposed parts must not pose shock risk	NA
	iii). Conductor Integrity	Insulated and mechanically secured	Protective conductor must be secure and correct size	NA
6	Protective Conductor Current			
	i). Protective Conductor Current	No abnormal leakage current observed	Protective earth current must remain within safe values	NA
	ii). Conductor Integrity	Insulated and mechanically secured	Protective conductor must be secure and correct size	NA
7	Overcurrent Protection			
	i). Circuit Overcurrent Protection	30A inline fuse installed; peak 27A observed	Each electrical circuit must be protected by fuse/breaker	NA
	ii). Overload Behavior	No nuisance tripping during operation	Protection must not trip during normal startup & operation	NA
	iii). Wiring Protection	Fuse located near battery terminal	Conductors shall be protected from short/overload	NA
8	Correct Operation Criteria			
	i). System Functional Operation	Stable operation; current modulates with RPM	Control system must operate kit safely and reliably	NA
	ii). Fault Response Behavior	Current reduces under load; no unsafe state	System must prevent unsafe operation during faults	NA

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#	Parameters	Results	Specification	Status
	iii). No Unexpected Start	No auto-start observed after power loss	Unit must not auto-start after fault or reset	NA
9 Protection & Safety Analysis				
	i). Safety Limit Enforcement	Pressure \leq 0.25 MPa; current limited to 27A	System must apply temperature, pressure, voltage, electrolyte, gas mix limits	NA
	ii). Safety Devices Operability	System self-regulates under load	Safety interlocks and alarms must function	NA
	iii). Cascade Failure Avoidance	No unsafe condition observed	Single failure must not cause unsafe condition	NA
10 Special Fault Condition Monitoring				
	i). Process Fault Detection	No ECU DTC faults recorded	System must detect deviations (temp, flow, level, pressure, purity)	NA
	ii). Indicator & Alarm	Indicators function properly	Faults must show alarms/indicators	NA
11 Operational Mode Verification				
	i). Mode Indication	HHO ON/OFF clearly indicated	Each mode must be clearly indicated	NA
	ii). Sequential Start Control	Safe start sequence maintained	System starts only in designed sequence	NA
12 Leakage Detection / Quantification				
	i). Gas Leak Detection Function	No leaks detected during testing	System must detect HHO leaks	NA
	ii). Hazard Liquid Leak Detection	No electrolyte leaks observed	Detect electrolyte leaks	NA
13 Programmable Electronic Equipment (PEE)				
	i). PEE Compliance	ECU-integrated via SAE J1939	Controller supports safe operation	NA
	ii). Fail-Safe Behavior	No unsafe condition observed	Controller failure should not cause danger	NA
14 Start Control				
	i). Intentional Start	Start only by deliberate action	Starts only by deliberate human action	NA
	ii). Pre-start Safety Check	Normal startup verified	System verifies safe state prior to start	NA

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#	Parameters	Results	Specification	Status
15	Stop Function			
	i). Controlled Stop	Safe shutdown observed	System stops production safely	NA
	ii). Immediate Stop if Required	System capable of rapid stop	System must be able to stop quickly	NA
16	Emergency Stop (E-Stop)			
	i). Emergency Stop Availability	Hazardous operation halted immediately	E-Stop halts hazardous operation	NA
	ii). E-Stop Reset	Manual reset required before restart	Restart requires intentional reset	NA
	iii). Remote E-Stop Option	Remote ESD provision available	Remote ESD connection if applicable	NA
17	Interconnection Installations			
	i). Safety Interlock Communication	ECU SAE J1939 communication verified	HHO generator communicates safety-related conditions with connected equipment	NA
	ii). Coordinated Operation	No hazards during combined engine/HHO operation	Interconnected systems operate without creating hazards	NA
18	Environmental Protection			
	i). Ingress Protection	Splash-resistant	Protected against solid objects and water ingress	NA
	ii). Outdoor Suitability	Operated in highway/city conditions safely	Device operates safely in intended environment	NA
	iii). Temperature resistance	No overheating or thermal faults recorded	Operates within design temperature limits	NA
	iv). Drain Failure Safety	No overflow or spill observed	Failed drain must not endanger user or equipment	NA
19	Fuel consumption reduction per 100 km	~31% reduction (Avg. 13.5 L/100km saved)	HHO integration should reduce fuel consumption when compared with baseline fuel usage with operation over 100km	NA
20	Sustained engine power output (torque verification)	Full 13-ton operation; no torque loss	Engine torque/power is not be reduced by HHO system	NA

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#	Parameters	Results	Specification	Status
21	Temperature limit verification (overheating avoidance)	Stable operation; no thermal alarms	Engine temperatures (coolant & charge-air) remain within safe OEM/standard limits	NA

Attachment(s) to the test report : NONE

Remarks:

1. The above sample was analysed as per the instructions on UNBS Request for Analysis Form serial number RFA/2026/1927.
2. The Analysis was carried out at UNBS Electrical Laboratory located at the address below using the test methods indicated above and the status of results as per the Standard ES 7074:2024.
3. This test report number EL/2026/00154 is valid for sample number L/0191/2026T only and the results apply to the sample as received.

Note :

'NA' means the test parameter requested is not specified in Uganda Standards.

The tests were conducted according to the standard ES 7074:2024.

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- End of Test Report -