ENGINE OPERATED SPRAYER
ASPEE, DURO-TEKK UM002B/D

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE & FARMERS WELFARE
DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

NORTHERN REGION FARM MACHINERY TRAINING AND TESTING INSTITUTE
TRACTOR NAGAR, SIRSA ROAD, HISAR-125001 (HARYANA)
### PERFORMANCE REQUIREMENTS

**Cl.6. IS 11313:2007**

<table>
<thead>
<tr>
<th>Cl.6.1 Discharge rate/Suction capacity</th>
<th>When tested in accordance with the method given in 8.3, the pump shall be capable of discharging/sucking a minimum of 8000 ml water per minute at its rated speed and rated pressure.</th>
<th>The pump is capable to discharge 6875 ml/min without gun at 6011 rpm of pump speed and 10 kg/cm² pressure.</th>
<th>Does not conform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl.6.1.1 The discharge rate/suction capacity shall be declared by the manufacturer.</td>
<td>10 to 11 l/min declared in the manual of submitted by the manufacturer.</td>
<td>Conforms</td>
<td></td>
</tr>
<tr>
<td>Cl.6.2 Volumetric Efficiency Cl6.2.1 When determined in accordance with 8.4.1, the volumetric efficiency of the piston/plunger type pump shall minimum 80 percent.</td>
<td>The volumetric efficiency is 97.68% which is within specified limit.</td>
<td>Conforms</td>
<td></td>
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</table>

| Cl. 5.16 | The engine and electric motor shall conform to the requirements as given IS: 7347-1974 and IS:325-1996 respectively. | The prime mover fitted in the sprayer manufactured by Zhejiang Ousen Machinery Co. Ltd., China, model-TU-26E petrol engine of 0.7 kW at rated speed of 6000 rpm. In pursuance of ministry’s order no. 7-23/2011-M&T (I&P) dated 20.04.2011 the engine performance test as per IS:7347-1974 has not been conducted and the performance parameters as specified by the applicant have been presumed taking into consideration that the engine manufacturing company is ISO-9001:2008 certified company as is evident from the certificate registration no. 07613Q11362RIM valid until 05.09.2016. | -- |

| Cl. 5.16.1 | The exhaust outlet of the engine shall be so positioned that the smoke does not directly affect the operator or crop. A guard shall be provided on or near the exhaust pipe for the protection of the operator. | The exhaust outlet is RHS of engine and operator is not exposed to harmful exhaust. Pipe is covered with guard. | Conforms |

| Cl. 5.17 | The fuel and chemical discharge controls shall be in easy access of the operator. | Easy accessible to the operator. | Conforms |

| Cl. 5.18 | Air pressure chamber shall with stand the test prescribed in 8.7 without any deformation or damage. | No damage found in air pressure chamber. | Conforms |
| Cl.6.2.2 | The volumetric efficiency requirement for roller vane type pump shall be minimum 80%. | Not applicable | -- |
| Cl.6.3 Power requirement | When tested in accordance with the method given in 8.5, pump shaft power requirement shall not be more than that of the value declared by the manufacturer. | Not applicable | -- |
| Cl.6.4 Maximum achievable pressure | When tested in accordance with the method given in 8.7, maximum achievable pressure shall not be less than that of the value declared by the manufacturer. | Maximum achievable pressure observed as 30 kg/ cm² with gun against the declaration of 14.0 kg/cm². | Conforms |
| Cl.6.5 Endurance test | Sprayer shall withstand the test endurance test specified in 8.8 and the variation in Discharge rate between first and last observation shall not be more than ± 5 Percent. | Endurance test of 50 hrs. completed without any breakdown & the variation in pressure. Percentage variation in discharge is 1.14% with in specified limit (see annexure IV for more details). | Conforms |

### Cl.7 OTHER REQUIREMENTS (IS 11313:2007)

| Cl.7.1 | Each sprayer shall be provided with parts catalogue and manual giving detailed information about sprayer, engine, its rated speed along with operational and maintenance instructions and safety precautions. | Manual and parts catalogue is provided by the manufacturer and found adequate in contents. | Conforms |
| Cl.7.2 | Each sprayer shall be provided with a set of necessary tools, suction strainer having aperture size of 300 μm to 425 μm and a measuring jar for lubricating oil. | One set of Gaskets, spanner, O ring provided with sprayer. | Conforms |
| Cl.7.3 | On the option of the purchaser, the following accessories shall be supplied. |  |
| a) | A set of spray nozzles (conforming to Annexure-F of IS:3652-2007) for different discharge rates, and | Not applicable | -- |
| b) | Spray gun conforming to Annexure-E of IS:3652-2007. | Provided | Conforms |
| Cl. E 1 Types IS:3652:1995 | The spray guns shall be of the following two types: | N.A | -- |
| a) Trigger type | | Screw type | Conforms |
| b) Screw type | | 0.40 mm | Does not conform |
| Cl. E 2 Dimensions Cl. E 2.1 | The thickness of the wall of the barrel shall be minimum of 0.63 mm. | 4.35 mm | Does not conform |
| Cl. E 2.2 | The diameter of the connecting rod shall be minimum of 5 mm. | | |

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**ENGINE OPERATED SPRAYER**  
'ASPEE, DURO-TEKK UM002B/D', COMMERCIAL

<table>
<thead>
<tr>
<th>Cl.10. MARKING AND PACKING</th>
<th>(Cl.10 IS:11313-2007)</th>
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</thead>
<tbody>
<tr>
<td>Cl.10.1 Marking</td>
<td>Each sprayer shall be marked with the following particulars :-</td>
</tr>
<tr>
<td>a)</td>
<td>Manufacturer’s name &amp; his registered trade mark</td>
</tr>
<tr>
<td></td>
<td>Aspee Duro-Tekk, UM002B/D</td>
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<tr>
<td></td>
<td>Conforms</td>
</tr>
<tr>
<td>b)</td>
<td>Sl. No. and batch or code No.</td>
</tr>
<tr>
<td></td>
<td>Not marked</td>
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<td></td>
<td>Does not conform</td>
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### 6. COMMENTS AND RECOMMENDATION:-

#### 6.1 Conformity to Indian Standard

Engine operated sprayer Aspee UM002B/D conforms all the clauses of IS: 11313-2007 except requirement specified in the following clause. **These should be rectified and incorporated at manufacturing level:-**

i) The prime mover fitted in the sprayer manufactured by Zhejiang Ousen Machinery Co. Ltd. China, Model TU-26E petrol engine of 0.7 kW at rated speed of 6000 rpm, In pursuance of ministry’s order no. 7-23/2011-M&T (I&P) dated 20.04.2011 the engine performance test as per IS:7347/1974 has not been conducted and the performance parameters as specified by the applicant have been presumed taking into consideration that the engine manufacturing company is ISO-9001:2008 certified company as is evident from the certificate registration No. 07613Q11362RIM valid upto 05.09.2016.

ii) Cl. 6.1 IS: 11313:2007- Discharge rate/suction capacity of pump does not conform.

iii) Cl. E.2 IS: 3652:1995-Dimension of spray gun (Thickness of wall of barrel, dia. of connecting rod & length of spray gun) is not as per Indian Standard.

iv) Cl.E.5 IS: 3652:1995- The spray gun is not designated by its identification mark. It should be designated and marked.

v) Cl. 10.1 IS: 11313:2007-Sr. No., batch or code No. of sprayer is not provided. Each sprayer should have its unique sr. No./identification No. It should be provided.

#### 6.2 Safety provisions/safety wear

i) The accessories viz mask, hand gloves and safety goggles for operator’s safety has not been provided with sprayer. It must be provided for safety of user.

ii) Safety signs and hazard pictorials are not provided on the machine. It must be provided on the machine for safety of user.

iii) Safety instructions regarding handling poisonous agrochemical and first aid may also be added in operator’s manual.