

BUREAU OF INDIAN STANDARDS
BANGALORE BRANCH LABORATORY

13/06/2016

Subject: Comments on IS 4277:2014

This bears reference to the Indian Standard Specifications for edible oils published in 2014. While going through IS 4277:2014, following observations have been made.

S. No.	Test requirement / Ref. cl.	Comments																												
1.	5.4 Oils shall not contain aflatoxin, more than 30 µg/kg, when tested by the method prescribed in IS/ISO 14718 or as prescribed in Annex A.	<ol style="list-style-type: none"> Although the requirement for aflatoxin is given as quantitative (30 µg/kg), the method given in Annex A of relevant ISS appears to be for checking the presence or absence. Interpretation of results (Negative or positive) as given in cl.A-3.1 is not clear. 																												
2	5.8.1.2 The product shall not contain aflatoxin, more than 5 µg/kg, when tested by the method prescribed in IS/ISO 14718 or as prescribed in Annex A.	---do---																												
3.	5.7. Table 1(ix), Hexane, in case of Solvent extracted Refined Sunflower Oil	<ol style="list-style-type: none"> The requirement for Hexane in the ISSs given is 5. 00 ppm (mg/kg), Max. But as per last sentence of cl.B-1 (Annex B), the test method is suitable for determination of quantities of hexane between 10 and 1 500 mg/kg in fats and oils. It is proposed the source of availability of reference vegetable oil, solvent free, cl.B-3.4 (required for spiking with hexane for determination of calibration factor) may also be specified in the ISSs. (Pl. see Note). As per cl.B-6.1 Determination of the Calibration Factor, in the table (µl/5g v/s mg/100g), for the volume (µl) of Hexane added per 5 g of reference oil, the respective concentration (mg/100g) of Hexane in refined oil (spiked) does not appear to be correct. <p><u>Values in given table are:</u></p> <p>Spiking of reference oil with Technical Hexane</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">µl/5g</td> <td style="text-align: center;">0.5</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> <td style="text-align: center;">7</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: left;">mg/100g</td> <td style="text-align: center;">67</td> <td style="text-align: center;">134</td> <td style="text-align: center;">268</td> <td style="text-align: center;">536</td> <td style="text-align: center;">938</td> <td style="text-align: center;">1340</td> </tr> </table> <hr/> <p>Spiking of reference oil with n-Hexane</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">µl/5g</td> <td style="text-align: center;">0.5</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> <td style="text-align: center;">7</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: left;">mg/100g</td> <td style="text-align: center;">66</td> <td style="text-align: center;">132</td> <td style="text-align: center;">264</td> <td style="text-align: center;">528</td> <td style="text-align: center;">924</td> <td style="text-align: center;">1320</td> </tr> </table> <hr/> <p><u>However, correct values in 2nd row of table expressed as mg/100 g should be:</u></p> <p>Spiking of reference oil with Technical Hexane</p>	µl/5g	0.5	1	2	4	7	10	mg/100g	67	134	268	536	938	1340	µl/5g	0.5	1	2	4	7	10	mg/100g	66	132	264	528	924	1320
µl/5g	0.5	1	2	4	7	10																								
mg/100g	67	134	268	536	938	1340																								
µl/5g	0.5	1	2	4	7	10																								
mg/100g	66	132	264	528	924	1320																								

µl/5g	0.5	1	2	4	7	10
mg/100g	6.7	13.4	26.8	53.6	93.8	134.0

Spiking of reference oil with n-Hexane

µl/5g	0.5	1	2	4	7	10
mg/100g	6.6	13.2	26.4	52.8	92.4	132.0

It may please be noted that the **values in 2nd row** when converted to **mg/kg or ppm** (in order to align the same in accordance with the requirements of edible oil standards) will be as follow

Spiking of reference oil with Technical Hexane

µl/5g	0.5	1	2	4	7	10
mg/kg(ppm)	67	134	268	536	938	1340

Spiking of reference oil with n-Hexane

µl/5g	0.5	1	2	4	7	10
mg/kg(PPM)	66	132	264	528	924	1320

The concentrations (mg/kg or ppm) prepared for making calibration curve are much more than the specified requirements (5.00 ppm or 5.00 mg/kg).

Since, edible oils are likely to be covered under PCS of BIS, Competent Authority may kindly consider the above facts for making necessary changes/amendment in the specifications as mentioned above.

S. K. Arora
Sc-B, OIC (QA & LRS)