

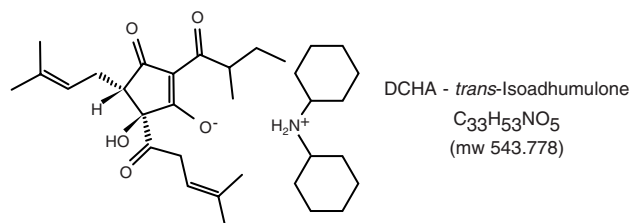
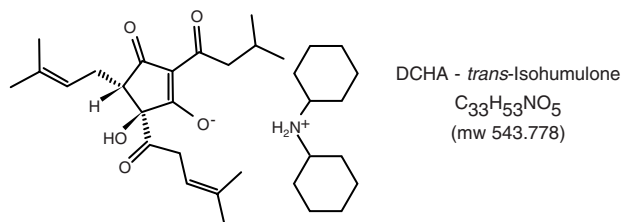
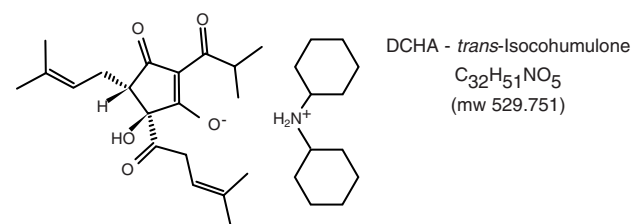
DCHA-Iso, ICS-I3

ICS-I3 is a purified preparation of the dicyclohexylamine salts of *trans*-iso- α -acids. It is deemed to have a total iso- α -acids content of 62.3% (w/w), though this figure takes into account only the major forms of the iso- α -acids that are present: *trans*-isocohumulone, *trans*-isohumulone and *trans*-isoadhumulone. (N.B. Worts and beers brewed with hops, hop extracts, pellets and all commercial “Iso” products invariably also contain substantial proportions of the corresponding *cis*-iso- α -acids - see User’s Guide supplied with the standard).

If you are using the recommended method, expect the area of the *trans*-isocohumulone peak to be about 33.6% of the total peak area of all of the compounds included in the calibration. (**Caution:** This may not be the case for methods that use other mobile phases, or for measurement at different wavelengths).

ICS-I3 replaces ICS-I2. The new standard has been cross-checked against the old and will give similar results.

Structures of DCHA-Iso-alpha-acids



DCHA-Rho, ICS-R3

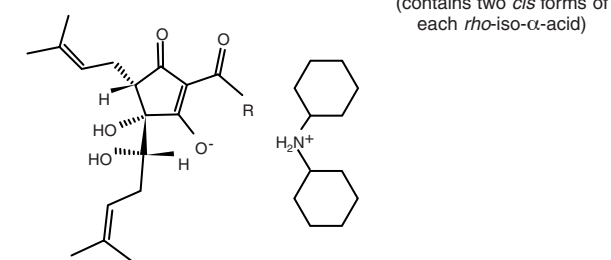
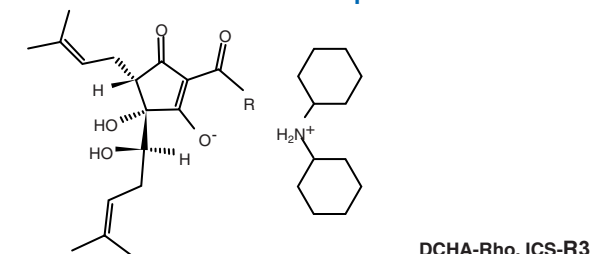
ICS-R3 is a purified preparation of the dicyclohexylamine salts of *cis*- ρ -iso- α -acids. This standard is deemed to have a total ρ -iso- α -acids content of 65.0% (w/w), though this figure takes into account only the major forms of the ρ -iso- α -acids that are present: two *cis*- ρ -isocohumulones, two *cis*- ρ -isohumulones and two *cis*- ρ -isoadhumulones. (N.B. Commercial “Rho” products typically contain a significant proportion of a *trans*- ρ -isohumulone isomer - see User’s Guide supplied with the standard).

If you are using the recommended method, expect the combined area of the *cis*- ρ -isocohumulones peaks* to be about 14.5% of the total peak area of all of the compounds included in the calibration. (**Caution:** This may not be the case for methods that use other mobile phases, or for measurement at different wavelengths).

ICS-R3 replaces ICS-R2. The new standard has been cross-checked against the old and has an essentially identical response factor per unit of total *cis*- ρ -iso- α -acids.

* The supplied chromatogram shows two peaks, corresponding to the two *cis* forms of this particular iso- α -acid. However, it is not known which peak corresponds to which of the two forms shown below. (The same is also true for the ρ -isohumulones peaks).

Structures of DCHA-rho-Iso-alpha-acids



Tetra, ICS-T3

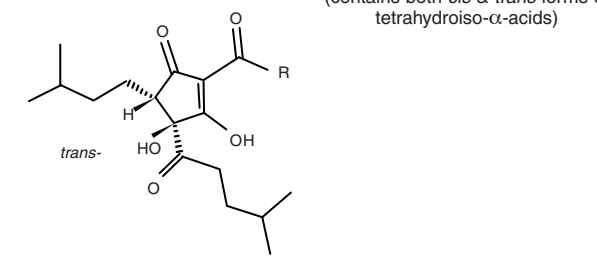
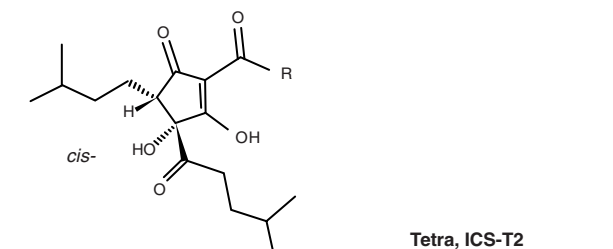
ICS-T3 is a purified preparation containing both *cis*- and *trans*-isomers of the tetrahydroisocohumulones, tetrahydroisohumulones and tetrahydroisoadhumulones. In respect of these six isomers it is deemed to have a total tetrahydroiso- α -acids content of 99.4% (w/w).

If you are using the recommended method, expect the (combined) area of the tetrahydroisocohumulones peak(s)* to be about 35% of the total peak area of all of the compounds included in the calibration. (**Caution:** This may not be the case for methods that use other mobile phases, or for measurement at different wavelengths).

ICS-T3 replaces ICS-T2. The new standard has been cross-checked against the old and will give similar results.

* The supplied chromatogram shows only one peak. However, it is often found that the two isomers of tetrahydroisocohumulone are partially resolved.

Structures of Tetrahydroiso-alpha-acids



Tetrahydroisocohumulones
 $C_{20}H_{32}O_5$
(mw 352.464)

Tetrahydroisohumulones & Tetrahydroisoadhumulones
 $C_{21}H_{34}O_5$
(mw 366.490)

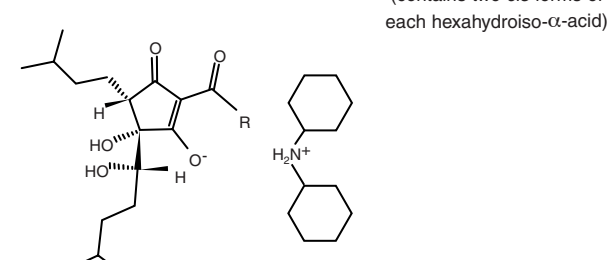
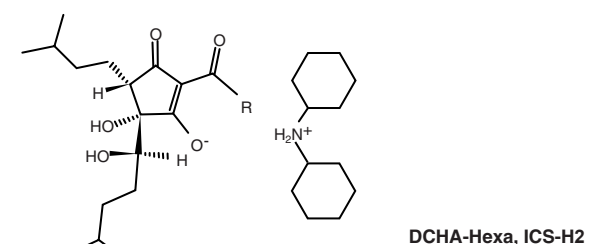
DCHA-Hexa, ICS-H2

ICS-H1 is a purified preparation of the dicyclohexylamine salts of *cis*-hexahydroiso- α -acids. It is deemed to have a total hexahydroiso- α -acids content of 65.7% (w/w), though this figure takes into account only the major forms of hexahydroiso- α -acids that are present: two *cis*-hexahydroisocohumulones, two *cis*-hexahydroisohumulones and two *cis*-hexahydroisoadhumulones.

If you are using the recommended method, expect the combined areas of the *cis*-hexahydroisocohumulones peaks* to be about 53% of the total peak area of all of the compounds included in the calibration. (**Caution:** This may not be the case for methods that use other mobile phases, or for measurement at different wavelengths).

* The supplied chromatogram shows two peaks, corresponding to the two *cis* forms of this particular iso- α -acid. However, it is not known which peak corresponds to which of the two forms shown above. (The same is also true for the ρ -isohumulones peaks).

Structures of DCHA-Hexahydroiso-alpha-acids



DCHA-hexahydroisocohumulones
 $C_{32}H_{57}NO_5$
(mw 535.796)

DCHA-hexahydroisohumulones & isoadhumulones
 $C_{33}H_{59}NO_5$
(mw 549.823)