

Section A6.2

Metabolism

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		Official use only
	1 REFERENCE	
1.1 Reference	Andersen, F.A. (1998). Report of the cosmetic ingredient review expert panel. Mutagenicity: Lactic acid. International Journal of Toxicology, volume 17. Supplement 1, p 124. Not GLP, published	X
1.2 Data protection	No	
1.2.1 Data owner	Not applicable	
1.2.2 Companies with letter of access	Not applicable	
1.2.3 Criteria for data protection	No data protection claimed	
	2 GUIDELINES AND QUALITY ASSURANCE	
2.1 Guideline study	No, review article	
2.2 GLP	No, review article	
2.3 Deviations	Not applicable, review article	
	3 MATERIALS AND METHODS	
	Not applicable, review article	
	4 RESULTS AND DISCUSSION	
	Not applicable, review article	
	5 APPLICANT'S SUMMARY AND CONCLUSION	
5.1 Materials and methods	Not applicable, review article	X
5.2 Results and discussion	In this review by the cosmetic ingredient review expert panel, the dermal absorption of lactic acid was discussed, as lactic acid is an ingredient in many topical applications. The <i>in vitro</i> dermal absorption of 5% lactic acid in 2% PEG-100 stearate and 1% laureth-4 was examined in human abdominal skin at pH 3 and 7. The total absorption was highest at lowest pH: 30.4% and 9.73% at pH 3 and 7, respectively. To determine the effect of vehicle and pH on the <i>in vitro</i> dermal absorption, several emulsions of lactic acid (w/o, o/w, and w/o/w) were applied to porcine skin. The absorption was highest in o/w emulsions, and lowest in w/o emulsions. When pH was decreased, the absorption was higher, up to 100% in 6 hr from the o/w emulsion. Finally, the percutaneous absorption of topically applied lactic acid (5%	X

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		in an oil-in-water cream) in rats was 50% after 3 days.	
5.3	Conclusion	The dermal absorption of lactic acid is highest in oily formulations, and at low pH. As a worst-case, a dermal absorption of 100% is used in the risk assessment.	X
5.3.1	Reliability	1, review prepared by the cosmetic ingredient review (CIR) expert panel	X
5.3.2	Deficiencies	Not applicable, review article	

Evaluation by Competent Authorities

Use separate "evaluation boxes" to provide transparency as to the comments and views submitted

		EVALUATION BY RAPPORTEUR MEMBER STATE
Date		2008/05/21
Materials and Methods		Studies on the dermal absorption of lactic acid formulations in human and pig skin ex vivo and rats in vivo were reviewed. No information on the technical product was provided.
Results and discussion		Applicant's version adopted with following amendments: Lactic acid is also known as mild exfoliant and used as skin peeling agent. This may further affect dermal absorption after repeated exposure. 5.2 From the original publication of Sah et al. (1998) it becomes clear that a dermal absorption of 100 % was not observed but a > 100 % increase of dermal absorption from ~7 % to ~32 %.
Conclusion		The dermal absorption of lactic acid is highest in oily formulations, and at low pH. Since dermal absorption values from 7 % to 50 % were observed dependent on formulation, a dermal absorption of 100 % is used in the risk assessment as a worst-case assumption.
Reliability		2
Acceptability		Acceptable with restrictions (see remarks)
Remarks		Review, no original data 1.1 Reference: According to the manuscript, page numbers are 1-241 (the mutagenicity part, p. 124, is not relevant for this section). <u>Other results:</u> 42 % conversion into CO ₂ following gavage application of 2 g/kg bw DL-lactic acid to male Fisher 344 rats within 6 hours. Volume of distribution of ~0.5 L/kg bw, turnover 2.3 g/kg bw/d and 88 % conversion into CO ₂ following i.v. application of L(+) lactic acid in humans. 100 % oral absorption of sodium DL-lactate in dogs.
		COMMENTS FROM ...
Date		<i>Give date of comments submitted</i>
Materials and Methods		<i>Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant's summary and conclusion. Discuss if deviating from view of rapporteur member state</i>

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Results and discussion	<i>Discuss if deviating from view of rapporteur member state</i>
Conclusion	<i>Discuss if deviating from view of rapporteur member state</i>
Reliability	<i>Discuss if deviating from view of rapporteur member state</i>
Acceptability	<i>Discuss if deviating from view of rapporteur member state</i>
Remarks	